



Kingdom of the Netherlands



Investment Opportunities in the Moroccan Dairy Sector



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ABBREVIATIONS AND ACRONYMS

AI	- Artificial Insemination
AMIV	- Moroccan Association of Meat Manufacturers
ADA	- Agency for Agricultural Development of Morocco
ANAP	- National Association of Private or Privately Managed Abattoirs
ANB	- National Association of Butchers
ANC	- National Association of Horses
ANEB	- National Association of Cattle Breeders
ANOC	- National Ovine and Caprine Association
ANPVR	- National Association of Red Meat Producers
ANTVH	- National Halal Meat Processing Association
CDA	- Centres for Agricultural Development
CNERV	- National Centre of Studies and Research in Extension
CP	- Crude protein
CRIA	- AI Regional Centre
DEFR	- Research, Training and Education Directorate
DM	- Dry matter
Dh	- Moroccan dirham (MAD)
EBRD	- European Bank for Reconstruction & Development
FMCP	- Full Cream Milk Powder
FIMALAIT	- Interprofessional Moroccan Federation of Milk (Maroc Lait)
FNPL	- National Federation of Milk Producers
FNIL	- National Federation of Industrial Milk Processors
FAO	- Food and Agricultural Organization
FENEPROL	- National Federation of Milk Producers (merger of ANEB & FNPL)
FIVIAR	- Interprofessional Federation of Red Meats
GCAM	- Group Credit Agricole Morocco
GDP	- Gross Domestic Product
GMP	- Green Morocco Plan
KMT	- 1000 metric tons
LU	- Livestock Unit
MAMF	- Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests
MCC	- Milk Collection Centre
NGO	- Non-Governmental Organization
ODCO	- Office for the Development of Cooperation
OIE	- World Organization for Animal Health
ONCA	- National Office for Agricultural Council
ONICL	- National Interprofessional Office for Cereals and Legumes
ONSSA	- National Food Safety Office
PNEEI	- National Economic Plan for Irrigation Water
SMP	- Skimmed Milk Powder
SNIT	- National Cattle Identification and Traceability System
UFL	- Energy unit for lactation
UHT	- Ultra-High Temperature
VS	- Veterinary Surgeon

Exchange Rates (January 2021): 1 Euro = 10.809 Dh (MAD)
1 Dh = 0.093 Euro

Disclaimer

The views expressed in this report are those of the consultant and are based on the information collected/provided as well as own observations. They do not necessarily reflect the views of the client.

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FACT SHEET ON THE KINGDOM OF MOROCCO

Official name	Royaume du Maroc
Capital	Rabat
Location	Maghreb region of North Africa, 14 km from Europe, bordering on Algeria in the East and the disputed Western Sahara on the South.
Total area	446,551 km ² (excluding Western Sahara), 712,550 km ² (Morocco and Western Sahara combined). Lakes/fresh water areas: 250 km ² .
Agricultural area	305,915 km ² (68.5% total area): arable 17.5%, permanent crops 2.9%, permanent pasture 47.1%, forest 11.5% and other 21.6%. Irrigated area ± 1.5 million ha.
Political system	Unitary semi-constitutional monarchy with elected parliament
Head of State	King Mohamed VI
Prime Minister	Saadeddine Othmani
Currency	Moroccan Dirham (Dh or MAD)
Average exchange rate	Euro 1 = MAD 10,860 (average August 2020 - January 2021)
Macro economic data	
➤ GDP (nominal)	2019: US\$ 122,458 billion, per capita: US\$ 3,441
➤ GDP (PPP 1)	2019: US\$ 332,358 billion, per capita: US\$ 9,339
➤ GDP per sector activity	Agriculture: 14.8%, Industry 29.1% and Services 56.0% (2017 est.)
➤ Inflation rate	Average 2015 - 2019: 0.84% (based on previous years)
➤ Economic growth	2015: 4.5, 2016: 1.1, 2017: 4.2, 2018: 3.1, 2019: 2.5 (in % GDP, annual variation)
➤ Public debt (% GDP)	2019: 66.2%
Demographic data	
➤ Population	2020 estimate: 37,057,908, census 2014: 33,898,242. Density 50.0/km ²
➤ Working population	10.399 million (39.1% agriculture, 20.3% industry and 40.5% services (2014 est.))
➤ Unemployment rate	9.23% (2019 est.)
➤ Urban population	63.5% (2020), with annual change in rate of urbanization 2.14% (2015-2020 est.)
➤ Life expectancy	73.3 years, male 71.6 and female 75.1 (2020 est.)
Official language	Arabic and Amazigh (Berber), but French also used in official and administrative documents
Official religion	Sunny Islam, but Moroccan constitution guarantees the free exercise of other religions
Time zone	GMT (GMT+1 summer time)
Climate	Morocco's climate varies considerably from north to south. Both rainfall and temperature are strongly influenced by the Atlantic Ocean to the west, the Mediterranean Sea to the north, and the Sahara Desert to the south and southeast. Morocco's agricultural activities are located predominantly in the country's central and northern regions.
Dairy sector	
➤ Farms with < 10 cows	360,000 estimated
➤ Farms with > 10 cows	40,000 estimated
➤ Total milk production	2,500,000 tons (2018)
➤ Milk formally processed	65-70% of total production
➤ Milk processing companies	82 total, of which 6-8 process 82% of the formal processed milk
➤ Total cattle population	3.4 million heads (2018 est.)
➤ Total no. of cows	1.8 million heads (2018 est.)
➤ Milk collection centres	2700 (2019 est)
➤ Main production areas	60-70% of milk is produced in irrigated areas or regions with sufficient rainfall

Summary

Morocco is country with more than 400,000 farmers involved in some form of milk production, but where only some 40,000 farms can be considered (semi) professional. No accurate figures could be obtained on farm size and number, but it is in the irrigated areas and regions with sufficient rainfall that 65-70% of all milk is produced by a mix of smallholders and some highly professional farms. The total milk production is estimated at 2,500,000 tons/year, with around 1.8 million cows. The formal milk processing industry collects \pm 60-70% of the total milk production, while the remainder is either home consumption or informal trade. Morocco is for 94% self-sufficient, while exports vary around 6%.

The dairy sector is in a process of modernisation and development, but still dominated by smallholders that depend on a combination of mixed farming: crops, dairy and beef. In those areas with enough rainfall and/or irrigation milk production is more common and here we see large- and medium farms emerging, with more potential for higher yields. Although for many years purebred dairy heifers have been imported as part of the strategy to increase milk production, the results could be better. Many farmers lack the knowledge and the capital to manage these animals in such a way that they can reach their genetic potential. The government is aware of the constraints in dairy development, but must find a balance between support to professional farms and the traditional farming systems in the rural areas. With more than 40% of the population making a living from agriculture, it is not an easy task to achieve all targets.

The processing industry is dominated by Danone and a few other processing companies. Dairy cooperatives collect the milk from their members and other farmers (sometimes through traders) and deliver the bulk to the dairy plants. Milk composition and quality are often less than desired and although payment is based on quality and contents, this does not work as an incentive for the individual farmer as there is no *individual* test and payment system. It is the tank sample at the milk collection centre that determines the price. Dairy companies do provide extension services, sometimes in cooperation with donor organisations and NGOs, but this is not sufficient yet.

The drought of the past 3 years, in combination with other factors, had a negative impact on milk production. Lack of feed and fodder resulted in higher culling rates and halted the steady growth in development. Forecasts, however, are more promising as demand for dairy products is still growing because of improved standards of living and a growing population. Export of dairy products is limited, but dairy companies are already looking at potential markets in North Africa for regional products. Continued government support will be provided and needed to overcome the challenges that still exist.

Challenges ...

The dairy chain will need to tackle a series of challenges in the near future. Animal production requires:

- ◆ Increased production per cow through genetic improvement and meeting feed requirements,
- ◆ Improved milk quality with a payment system that rewards quality at farm level, and
- ◆ Stimulating more professional farming through investment support and technical advice.

On many farms milk production is well below the genetic potential of cows as the management skills to deal with purebred dairy cows is missing. This is worsened by the lack of good forage and the dependence on imported feed ingredients. The prices for feed are increasing and profits are going down. *As a result, farmers sell young heifers that are needed as replacement stock to save on costs.*

For farmers to make the step towards professional dairy farming there has to be (1) a *reliable market and attractive price for raw milk* and (2) *access to credits* to make the necessary investments in land, buildings, equipment and cows. The government is aware of the lack of investment in farm development and already instructed banks to lower interest rates and make it easier to obtain loans. Collateral remains difficult, as land ownership is not always properly registered.

Without a reliable irrigation system, farmers cannot feed their animals during drought periods. Water resources are limited and it is a major challenge to increase the irrigated areas, while ensuring that groundwater levels are safeguarded. The regular periods of drought show the vulnerability of agricultural production.

The processing industry needs a regular supply of good quality milk. The seasonality in milk production and the quality of raw milk are serious constraints that need to be solved. Government support to build more milk powder plants is one way of overcoming this constraint, but it will also be necessary to address the production system at its roots.

Market development, both for local consumption as exports, needs value-added products of high quality and thus good quality milk to compete successfully with imported products and to develop new markets in North Africa. At present dairy production covers more than 90% of the local demand and it is cheese and other value-added dairy products that are mainly imported. Exports are around 6%, mainly processed cheese and this could increase if enough quality milk would be available.

The processing industry works in close relation with the farms and dairy cooperatives. Support through imports of heifers and semen, technical advice and guidance is provided, but never enough to cover all needs. The formal research and extension system also lack the capacity to solve all problems in the field.

For **Dutch suppliers** the market in Morocco is not the easiest, as there is not only a language barrier but also payment conditions are more complicated. Dealers need more time to get paid by their clients and expect from their suppliers also more lenience in payment conditions. This poses a risk that can only be reduced if there is mutual trust and enough trade to keep both parties interested and actively involved. The French companies not only have an advantage because of the language, but their transport costs are also lower as they are almost neighbours.

All these challenges also indicate that there still is much to do and much to be achieved. It is therefore time to look at all the...

... Opportunities

Dutch companies are regularly asked for offers, but mention that this seldom leads to actual contracts. Offers are used for comparison reasons and then lose out on price or other reasons. Successful Dutch companies have managed to find a reliable dealer, with whom they have built a relation of trust and who has the right contacts in the country.

A representative of a large organisation like Copag, with thousands of milk suppliers, could not mention any Dutch supplier of barn equipment. All barn equipment comes from United Projects (UP) which is a strong dealer for a range of (French) companies. Nevertheless, the Copag representative believes that with good service, spare parts and competitive prices there is a market for Dutch companies.

On *milk production* the report covers the following subsectors:

- ◆ Barn equipment and farm machinery
- ◆ Animal nutrition
- ◆ Genetic improvement, and
- ◆ Animal health

There are some large players in the market for *barn equipment and farm machinery*. Some serve the more advanced farms, others are more oriented towards the smaller ones that look for low-priced products. These companies have been dealing with European producers and know all relevant Dutch suppliers. They are aware of the quality of Dutch products, but already have good, long-lasting relations with other suppliers. To enter this market segment will not be easy, unless the Dutch companies can offer similar payment conditions as their French and German colleagues.

DeLaval, GEA and Boumatic are all present on the market and have their dealers or home office to serve their clients. In addition, these companies can not only offer a range of products, but also complete turn-key projects.

For *pregnant heifers* there is strong competition from France and Germany in price and type of animal (heavier HF heifers preferred by clients, Montbeliard very popular, but Fleckvieh possible alternative). For specialised dairy farms, looking for quality, there still are opportunities. Adjustment of import regulations for Dutch suppliers will help to be more competitive, as the present agreement makes Dutch heifers at least 80 Euro more expensive than the German heifers.

For **bovine semen** the potential market is to be aimed at specialised dairy farms, as smallholders mainly look at the price of semen. There will be a growing market for quality semen with the professionalisation of the sector. Local semen production stopped, but may be taken over by **Fimalait**, the organisation that represented farmers and processing industry until 2020 after which **Maroc Lait** was established.



The **feed industry** is strongly oriented towards poultry, with cattle feeds as second line. There are already many players on this market and more want to come in. A new company should distinguish itself to find its place in this market. With a good Moroccan partner there is knowledge of the local market while a Dutch partner can introduce new concepts of quality, marketing and advisory services.

On **animal health** we approached two companies. One of them mentioned that their business with Morocco was all done from their French office and only concerned the poultry industry. The other one is well established in Morocco and one of the main players in the supply of a large range of drugs. All major producers of animal drugs are present in Morocco.

Opportunities related to **milk processing** also exist as the Moroccan government made a commitment for the next decade to support dairy development. Improved milk quality combined with further product development is one of the key-issues in the Generation Green program. Here we look at:

- ◆ Milk processing equipment
- ◆ Cold chain & storage equipment
- ◆ Product development

New processing lines and further expansion of processing plants can be expected as the government strongly stimulates increased local consumption of dairy products and the development of new value-added products to substitute imports.

Export of dairy products in North Africa will be another area of market development. The high seasonality of milk supply is a constraint for the processing industry and new milk powder plants are to be established.

Milk quality improvement will be necessary to reach higher standards of production and support to upgrade milk collection centres and the total cold chain will continue. At the same time the informal trade in milk and dairy products will be discouraged as this is considered a threat to food safety and sanitation.

New products will require technical advice on product development, certainly for the small and medium dairy plants that have little experience in the production of value-added product. The question then is: are they willing to pay for advice.

Other areas that may offer opportunities for cooperation are **research, education and extension**. Although the relevant research and education institutes that were interviewed are not yet involved in structural cooperation with their Moroccan counterparts, there is at least some interest from Dutch side. For Morocco we know that much research has been conducted, but the practical link to transfer the know-how to the farmers needs to be improved. Links with the processing companies could be attractive as there would be a direct benefit for all stakeholders.

The past and present¹ **Dutch projects** to support dairy development were/are carried out in close cooperation with local partners, such as Crédit Agricole, IAV Hassan II and local extension agencies. Such projects offer opportunities to establish contacts and to start *pilot programs that could have a multiplier effect*. As projects take time to develop, longer project periods are recommended to ensure that results are sustainable and effective.

For commercial activities it is tempting to focus on the professional farms in the irrigated areas. Here farmers have more opportunities to develop and invest (if they know how to make use of all government support measures). In the rural area life is more difficult and farming quite traditional. This is a region for support organisations and donor funded projects. Good relations with government and the processing industry are essential in doing business in Morocco, but a strong local partner is even more important.

¹ Vers un élevage laitier durable dans la région de Tadla-Azilal

Sommaire

Le Maroc est un pays avec plus de 400.000 agriculteurs impliqués sous une forme ou une autre dans la production laitière, mais où seuls 40.000 exploitations peuvent être considérées comme (semi) professionnelles. Aucun chiffre précis n'a pu être obtenu sur la taille et le nombre des fermes, mais c'est dans les zones irriguées et les régions à pluviométrie suffisante que 65 à 70% de tout le lait est produit par un ensemble de petits exploitants et de certaines exploitations hautement professionnelles. La production totale de lait est estimée à 2.500.000 tonnes / an, avec environ 1,8 million de vaches. L'industrie formelle de la transformation laitière collecte ± 60 à 70% de la production totale de lait, le reste va vers la consommation domestique, et le commerce informel. Le Maroc est autosuffisant à 94%, tandis que les exportations varient autour de 6%.

Le secteur laitier est dans un processus de modernisation et de développement, mais toujours dominé par de petits exploitants qui dépendent d'une combinaison d'agriculture mixte: cultures, produits laitiers et viande bovine. Dans les zones avec suffisamment de précipitations et / ou d'irrigation, la production de lait est plus courante et nous voyons émerger ici des fermes moyennes et grandes, avec plus de potentiel pour des rendements plus élevés. Bien que depuis de nombreuses années des génisses laitières de race pure aient été importées dans le cadre de la stratégie visant à augmenter la production laitière, les résultats pourraient être meilleurs. De nombreux éleveurs laitiers n'ont ni les connaissances ni le capital nécessaires pour gérer ces animaux de manière à ce qu'ils puissent atteindre leur potentiel génétique. Le gouvernement est conscient des contraintes qui gênent le développement laitier, mais il doit trouver un équilibre entre le soutien aux exploitations professionnelles et les systèmes agricoles traditionnels en milieu rural. Avec plus de 40% de la population vivant de l'agriculture, il n'est pas facile d'atteindre tous les objectifs.

L'industrie de transformation est dominée par Danone et quelques autres entreprises de transformation. Les coopératives laitières collectent le lait de leurs membres et d'autres éleveurs (parfois par l'intermédiaire de commerçants) et livrent le tout aux usines laitières. La composition et la qualité du lait sont souvent inférieures à ce que l'on souhaite. Bien que le paiement soit basé sur la qualité et le contenu du lait livré, cela ne fonctionne pas comme une incitation pour l'éleveur

Individuel, car il n'y a pas de système de test et de paiement individuel. C'est l'échantillon de la citerne de stockage au centre de collecte du lait qui détermine le prix. Les entreprises laitières fournissent des services de vulgarisation, parfois en coopération avec des organisations donatrices et des ONG, mais cela n'est pas encore suffisant.

La sécheresse des 3 dernières années, combinée à d'autres facteurs, a eu un impact négatif sur la production laitière. Le manque d'aliments et de fourrage a entraîné des taux d'abattage plus élevés et a interrompu la croissance régulière du développement. Les prévisions sont cependant plus prometteuses car la demande de produits laitiers continue d'augmenter en raison de l'amélioration du niveau de vie et d'une population croissante. Les exportations de produits laitiers sont limitées, mais les entreprises laitières recherchent déjà des marchés potentiels en Afrique du Nord pour les produits régionaux. Un soutien gouvernemental continu sera fourni et sera nécessaire pour surmonter les défis qui subsistent.

Les défis ...

La filière laitière devra relever une série de défis dans un proche avenir. La production animale nécessite :

- ◆ L'augmentation de la production par vache grâce à l'amélioration génétique et à la satisfaction des besoins alimentaires,
- ◆ L'amélioration de la qualité du lait grâce à un système de paiement qui récompense la qualité au niveau de la ferme, et
- ◆ De stimuler une agriculture plus professionnelle grâce à un soutien à l'investissement et à des conseils techniques.

Dans de nombreuses fermes, la production de lait est bien en deçà du potentiel génétique des vaches, car les compétences de gestion pour faire face aux vaches laitières de race pure font défaut. Cette situation est aggravée par le manque de bons fourrages et la dépendance à l'égard des ingrédients alimentaires importés. Les prix des aliments pour animaux augmentent et les bénéfices diminuent. En conséquence, les agriculteurs vendent les jeunes génisses qui sont nécessaires comme stock de remplacement pour économiser sur les coûts.

Pour que les éleveurs fassent le pas vers l'élevage laitier professionnel, il doit y avoir (1) un marché fiable et un prix attractif pour le lait cru et (2) l'accès à des crédits pour réaliser les investissements nécessaires en terres, bâtiments, équipements et vaches. Le gouvernement est conscient du manque d'investissements dans le développement agricole et a déjà demandé aux banques de baisser les taux d'intérêt et de faciliter l'obtention de prêts. Les garanties restent difficiles, car la propriété foncière n'est pas toujours correctement enregistrée.

Sans un système d'irrigation fiable, les éleveurs ne peuvent pas nourrir leurs animaux pendant les périodes de sécheresse. Les ressources en eau sont limitées et c'est un défi majeur d'augmenter les superficies irriguées, tout en s'assurant que les niveaux des nappes souterraines soient sauvegardés. Les périodes régulières de sécheresse montrent la vulnérabilité de la production agricole.

Les besoins de l'industrie de transformation sont un approvisionnement régulier en lait de bonne qualité. La saisonnalité de la production laitière et la qualité du lait cru sont de sérieuses contraintes qui doivent être résolues. Le soutien du gouvernement à la construction de plus d'usines de lait en poudre est un moyen de surmonter cette contrainte, mais il sera également nécessaire de s'attaquer au système de production à ses racines.

Le développement du marché, tant pour la consommation locale que pour les exportations, a besoin de produits à valeur ajoutée de haute qualité et donc de lait de bonne qualité pour concurrencer avec succès les produits importés et pour développer de nouveaux marchés en Afrique du Nord. À l'heure actuelle, la production laitière couvre plus de 90% de la demande locale et ce sont les fromages et autres produits laitiers à valeur ajoutée qui sont principalement importés. Les exportations sont d'environ 6%, principalement du fromage fondu et cela pourrait augmenter si du lait de bonne qualité était suffisamment disponible.

L'industrie de transformation travaille en étroite relation avec les exploitations agricoles et les coopératives laitières. Un soutien par l'importation de génisses et de semence, et des conseils techniques sont fournis, mais jamais assez pour couvrir tous les besoins. La recherche formelle et le système de vulgarisation n'ont pas non plus la capacité de résoudre tous les problèmes sur le terrain.

Pour les **fournisseurs Néerlandais**, le marché au Maroc n'est pas le plus simple, car il n'y a pas seulement une barrière linguistique mais aussi les conditions de paiement sont plus compliquées. Les importateurs ont besoin de plus de temps pour être payés par leurs clients et attendent de leurs fournisseurs plus de flexibilité concernant les conditions de paiement. Cela pose un risque qui ne peut être réduit que s'il existe une confiance mutuelle et suffisamment d'échanges pour garder les deux parties intéressées et activement impliquées. Les entreprises françaises ont non seulement un avantage en raison de la langue, mais leurs coûts de transport sont également plus bas car elles sont presque voisines.

Tous ces défis indiquent également qu'il reste encore beaucoup à faire et beaucoup à atteindre. Il est donc temps de regarder toutes les...

... Opportunités

Les entreprises néerlandaises sont régulièrement sollicitées pour des offres, mais mentionnent que cela conduit rarement à des contrats réels. Les offres sont utilisées à des fins de comparaison et sont rejetées à cause du prix ou pour d'autres raisons. Les entreprises néerlandaises qui réussissent ont réussi à trouver un revendeur fiable, avec qui elles ont construit une relation de confiance et qui a les bons contacts dans le pays.

Un représentant d'une grande organisation comme **Copal**, avec des milliers de fournisseurs de lait, n'a pu mentionner aucun fournisseur néerlandais de matériel d'étable. Tous les équipements d'étables proviennent d'**United Projects (UP)** qui est un grand revendeur pour de nombreuses entreprises (françaises). Néanmoins, le représentant de Copag estime qu'avec un bon service, des pièces de rechange et des prix compétitifs, il existe un marché pour les entreprises néerlandaises.

Concernant **la production laitière**, le rapport couvre les sous-secteurs suivants :

- ◆ Équipement d'étable et machinerie agricole
- ◆ Nutrition animale
- ◆ Amélioration génétique, et
- ◆ Santé animale

Il existe de grands acteurs sur le marché des **équipements d'étable et des machines agricoles**. Certains fournissent les fermes les plus avancées, d'autres sont plus orientés vers les plus petites fermes qui recherchent des produits à bas prix. Ces sociétés traitent avec des producteurs européens et connaissent tous les fournisseurs néerlandais concernés. Ils sont conscients de la qualité des produits néerlandais, mais entretiennent déjà de bonnes relations durables avec d'autres fournisseurs. Entrer sur ce segment de marché ne sera pas facile, à moins que les entreprises néerlandaises ne puissent proposer des conditions de paiement similaires à celles de leurs collègues français et allemands.



Une ferme laitière en Hollande

DeLaval, GEA et Boumatic sont tous présents sur le marché et ont leurs revendeurs ou leur bureau de liaison pour servir leurs clients. De plus, ces entreprises peuvent non seulement proposer une gamme de produits, mais également des projets clés en main.



Lely Astronaut : système de traite automatique

Pour les **génisses gestantes**, il y a une forte concurrence de la France et de l'Allemagne sur le prix et le type d'animal (génisses HF plus lourdes préférées par les clients, Montbéliard très populaire, mais la Fleckvieh est une alternative possible). Pour les fermes laitières spécialisées, à la recherche de qualité, il y a encore des opportunités. L'ajustement des réglementations d'importation pour les fournisseurs néerlandais contribuera à leur permettre d'être plus compétitifs, car le présent accord rend les génisses néerlandaises au moins 80 euros plus chères que les génisses allemandes.

Pour la **semence bovine**, le marché potentiel doit être destiné aux exploitations laitières spécialisées, car les petits exploitants privilégient d'abord le prix de la semence. Il y aura un marché croissant pour la semence de qualité avec la professionnalisation du secteur. La production locale de semence s'est arrêtée, mais pourrait être reprise par **Fimalait**, l'organisation qui représentait les agriculteurs et l'industrie de transformation jusqu'en 2020, après quoi **Maroc Lait** a pris le relai.



L'industrie de l'alimentation animale est fortement orientée vers la volaille, les aliments pour bétail viennent en deuxième position. Il y a déjà de nombreux acteurs sur ce marché et d'autres veulent y entrer. Une nouvelle entreprise doit se démarquer pour trouver sa place sur ce marché. Avec un bon partenaire marocain, il y a une connaissance du marché local tandis qu'un partenaire néerlandais peut apporter de nouveaux concepts de services de qualité, de marketing et de conseil.

Concernant la **santé animale**, nous avons approché deux entreprises. L'une d'elles a mentionné que ses affaires avec le Maroc se font toutes depuis son bureau français et concernent uniquement l'industrie avicole. L'autre est bien implantée au Maroc et elle est l'un des principaux acteurs dans la fourniture d'une large gamme de médicaments. Tous les grands producteurs de médicaments pour animaux sont présents au Maroc.

Des opportunités liées à la **transformation du lait** existent également car le gouvernement marocain s'est engagé pour la prochaine décennie à soutenir le développement laitier. L'amélioration de la qualité du lait combinée à la poursuite du développement des produits est l'un des enjeux clés du programme Génération Green. Ici, nous considérons :

- ◆ Equipement de transformation laitière
- ◆ Chaîne froide & équipement de stockage
- ◆ Développement de produit

On peut s'attendre à de nouvelles chaînes de transformation et à une nouvelle expansion des usines de transformation, car le gouvernement stimule fortement l'augmentation de la consommation locale de produits laitiers et le développement de nouveaux produits à valeur ajoutée pour remplacer les importations.

L'exportation de produits laitiers en Afrique du Nord sera un autre domaine de développement du marché. La forte saisonnalité de l'approvisionnement en lait est une contrainte pour l'industrie de transformation et de nouvelles usines de lait en poudre doivent voir le jour.

Une amélioration de la qualité du lait sera nécessaire pour atteindre des normes de production plus élevées et un soutien à la modernisation des centres de collecte du lait et la chaîne du froid global se poursuivra. Dans le même temps, le commerce informel du lait et des produits laitiers sera découragé car il est considéré comme une menace pour la sécurité sanitaire des aliments et l'assainissement.

Les nouveaux produits nécessiteront des conseils techniques sur le développement de produits, certainement pour les petites et moyennes usines laitières qui ont peu d'expérience dans la production de produits à valeur ajoutée. La question est alors : sont-elles prêtes à payer pour des conseils ?

D'autres domaines qui peuvent offrir des opportunités de coopération sont **la recherche, l'éducation et la vulgarisation**. Bien que les instituts de recherche et d'enseignement concernés qui ont été interviewés ne soient pas encore impliqués dans la coopération structurelle avec leurs homologues marocains, il y a au moins un certain intérêt de la part des Pays-Bas. Pour le Maroc, nous savons que de nombreuses recherches ont été menées, mais le lien pratique pour transférer le savoir-faire aux agriculteurs doit être amélioré. Les liens avec les entreprises de transformation pourraient être intéressants car ils bénéficieraient directement à toutes les parties prenantes.

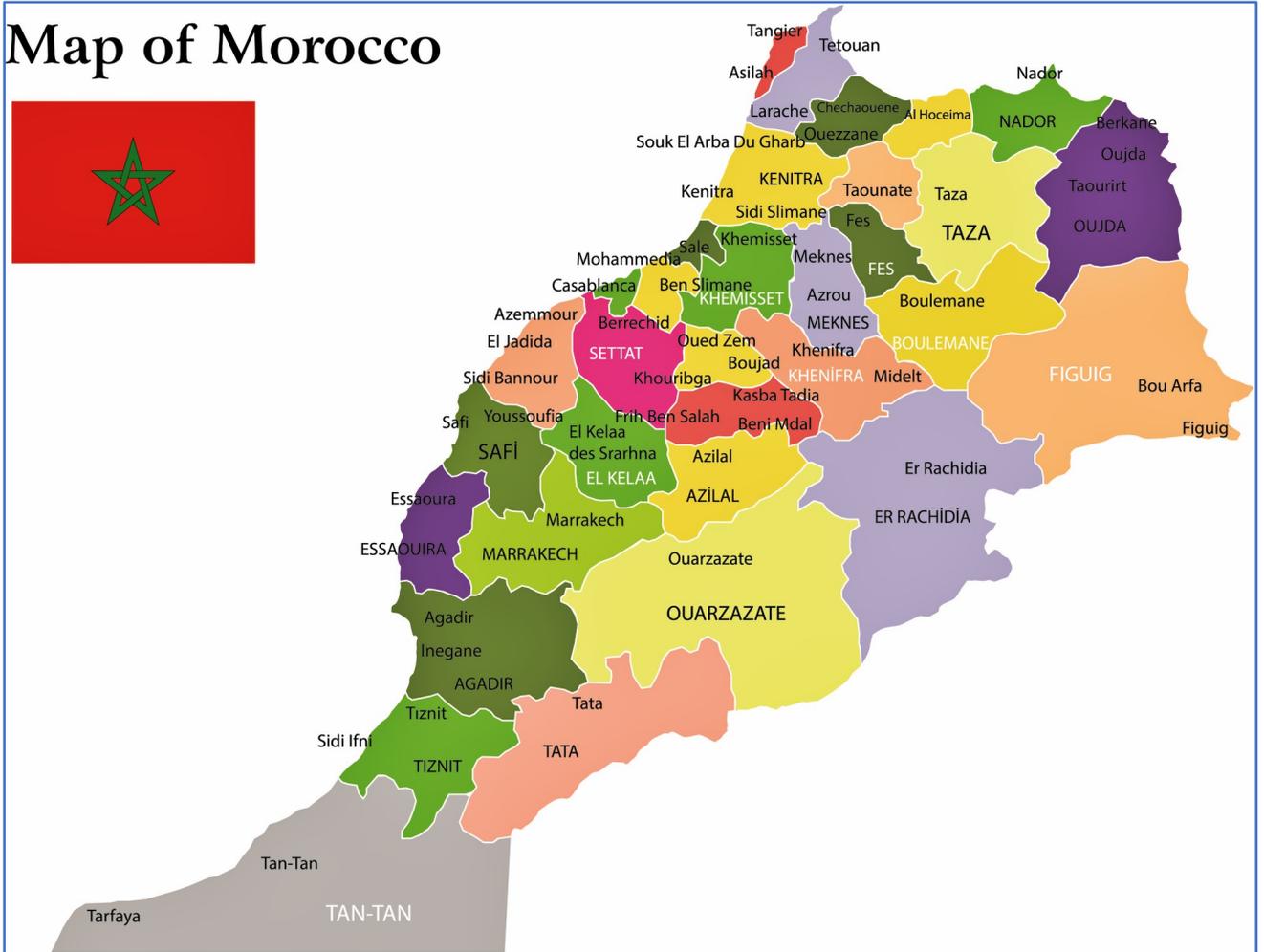


Un logiciel de gestion de troupeau est indispensable pour conserver et maîtriser le troupeau.

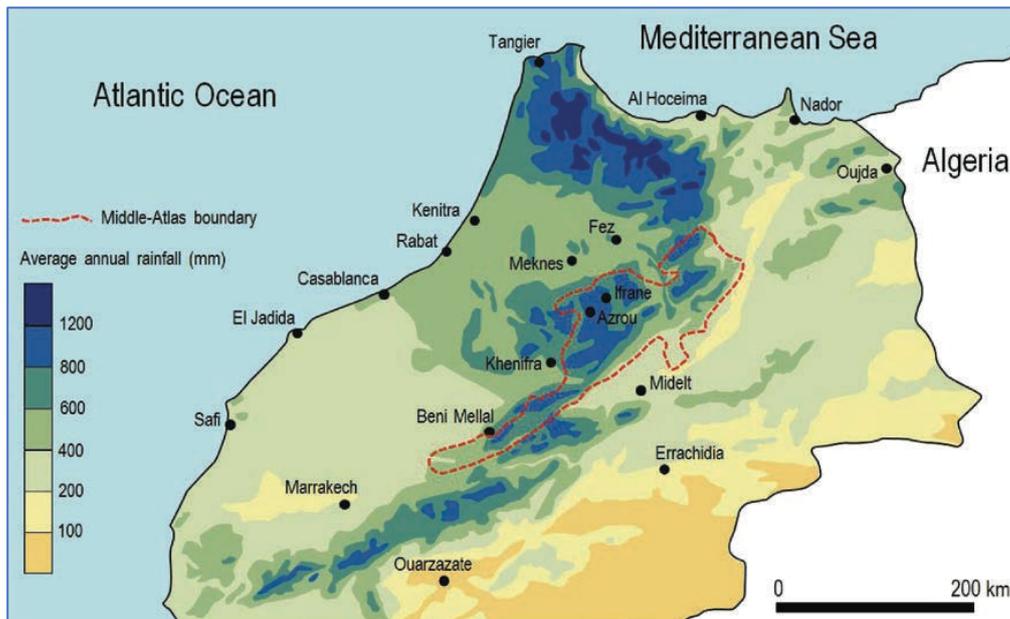
Les **projets hollandais** passés et présents de soutien au développement laitier ont été / sont menés en étroite coopération avec des partenaires locaux, tels que le Crédit Agricole, IAV Hassan II et les agences de vulgarisation locales. Ces projets offrent la possibilité d'établir des contacts et de lancer des programmes pilotes qui pourraient avoir un effet multiplicateur. Comme les projets prennent du temps à se développer, des périodes de projet plus longues sont recommandées pour garantir que les résultats soient durables et efficaces.

Pour les activités commerciales, on est tenté de se concentrer sur les fermes professionnelles dans les zones irriguées. Ici, les agriculteurs ont plus d'opportunités de se développer et d'investir (s'ils savent utiliser toutes les mesures de soutien du gouvernement). En milieu rural, la vie est plus difficile et l'agriculture assez traditionnelle. C'est une région pour les organisations de soutien et les projets financés par des donateurs. De bonnes relations avec le gouvernement et l'industrie de transformation sont essentielles pour faire des affaires au Maroc, mais un partenaire local fort est encore plus important.

Map of Morocco



Climatic conditions differ strongly, both in rainfall and temperatures



1 Introduction

1.1 Objective and approach of the study

The aim of the study was to identify potential areas for cooperation and commercial business development in the dairy sector of Morocco between Moroccan and Dutch companies and organisations.

Over the past years the dairy sector has already shown substantial progress in its development, but the challenges are still great. These challenges may offer interesting opportunities for Dutch business as the Moroccan government just introduced its new development plan: Generation Green.

At the invitation of the Agricultural Office in Rabat, Agriworks and Partners conducted this study on the dairy sector in Morocco. The team consisted of John Bonnier, study leader, Martin de Jong, dairy development, Hakeem Serbouti, business development and Chafik Khayour, farm manager and local consultant.

As Covid-19 made it impossible to travel to Morocco, the approach was based on a mix of interviews and desk study. Moroccan stakeholders were interviewed by Mr Khayour or contacted via internet by Mr Serbouti, as both of them have a strong network in the Moroccan dairy sector.

Relevant Dutch companies were approached by either Mr de Jong or Mr Bonnier, who also were responsible for the desk-study. All team members took part in report writing, with final editing by Mr Bonnier. During the study period regular meetings took place with the Agricultural Office in Rabat.

No.	Name and location	Size, hectares	Share of milk output, %
1	Gharp/Loukkos	132,000	16.2%
2	Moulouya	77,000	2.5%
3	Tadla	109,000	12.3%
4 & 7	Oasiam	65,000	0.8%
5	Doukkala	104,600	18.0%
6	Haouz	142,000	8.1%
8	Souss Massa	40,000	7.2%
Total			65.1%

1.2 General background on the agricultural sector

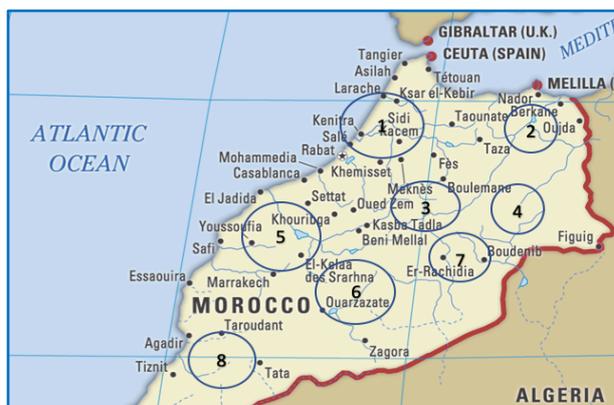
Dairy farming is strongly related to other agricultural activities – either as a complementary source of income or competing for soil with cash crops for export. A short overview of the agricultural sector is presented below, while an overview of the main indicators for Morocco are presented on the next page.

Agriculture² contributes to around 14-20% of Morocco's GDP and largely determines the growth level of the economy as agricultural output is highly variable from year-to-year. The agriculture, fishing, and forestry sector employs about 40-45% of the total workforce.

Morocco's agriculture is divided into three major sectors:

1. Modern, private, irrigated, highly capitalized, and export-oriented farms producing mostly fruit and vegetables
2. Agriculture within reorganized large-scale dam-irrigated perimeters producing mostly *dairy*, sugar crops, seeds, fruits and vegetables primarily for the local market
3. Rain-fed agriculture with more favourable land in the northwest (growing mostly grains, olives, pulses, *red meat and dairy*) and less favourable land in the south and east (growing mostly grains and non-intensive sheep production).

The main irrigation areas in Morocco



² US Embassy: Morocco - Agricultural Sector, 2019

Moroccan agricultural methods remain mostly traditional with limited applications of production inputs such as fertilizers, pesticides and mechanization. Grains account for over 60% of agricultural production, and the area planted for wheat has expanded due to increased government support.

The prevalence of small farms, complicated inherited land status, and increasing land prices pose serious challenges to agricultural policy makers.

Policy makers struggle with the conflicting underlying principles of economies of scale and the capitalization requirements necessary to modernize the agriculture sector and the desire to alleviate poverty and maintain the social structure of the traditional rural society.

Morocco is a net importer of agricultural and related products, which generally consist of imports of bulk commodities and exports of high-value, consumer-oriented products. The European Union is Morocco's primary trading partner, accounting for about 60% of Morocco's agricultural exports. Other reports (see the list of References) confirm this view about Moroccan agriculture and emphasize the importance of the environmental zones and climatic variations.

The coastal plains and plateaus: The coastal region to the north has a Mediterranean climate, with hot dry summers and mild wet winters; rainfall varies from 800 mm in the north (Gharb plain) to less than 200 mm in the Sous valley in the south.

The highland areas of the Rif and Atlas-mountains: Climate varies with altitude in the mountainous areas of Morocco, which make up 80% of the land. Mountain regions have higher rainfall, colder temperatures and winter snow at more than 2,000 meters.

The desert to the south east: This region is characterized by the scarcity of rain, high summer temperatures and very cold winter nights. In the pre-Saharan oasis zones and areas and sub-arid pastoral steppes and desert areas agricultural production is limited, unless there is irrigation as in Ourzazate and Tafilalet.

As a result of aridity and rainfall variability, Morocco is extremely vulnerable to drought which represents a structural recurrent phenomenon.

Several studies indicate that global climate change will add more to the existing barriers. Indeed, the country is already facing more frequent, more intense and longer drought episodes³.

Overall, Moroccan agriculture operates through a mixed and integrated crop/livestock system, representing the main source of income for the majority of rural households.

Most arable land and rangeland are located in areas receiving less than 400 mm of rainfall, where cereals and small ruminants mainly sheep are integral components of an extensive dryland production system.

Agricultural land covers 68.5% of the total land area and can be divided in arable land (17.5% - mainly wheat, maize and rice), permanent crops (2.9% - citrus, coffee, tuber, fruit trees, nuts and vines), permanent pasture (47.1% - natural and cultivated forage crops), forestry (11.5% - including windbreaks and corridors) and 'others' (21.0% - built-up areas, roads and other transportation features, barren land, or wasteland).

In 2008, the Moroccan government adopted a strategy to drive and reform the agricultural sector, promote the integration of agriculture into international markets and help agriculture achieve sustainable growth. The strategy was called the Green Morocco Plan and now followed by Generation Green. These plans will be discussed in more detail in Section 3.

Although dairy farming is not listed under the above land-use specification, its importance should not be underestimated as we will see in the next Section.



³ Ouiam Lahou, Country Profile

2 The Dairy Sector

2.1 Introduction

Already in the 1970s the Ministry of Agriculture launched a strategy called the 'National Dairy Plan' aimed at strengthening the Moroccan dairy value chain from production to processing and consumption. This strategy was backed by heavy taxes on imported milk powder and support to farm gate milk prices. With the Structural Adjustment Programs of 1983, the liberalization of the economy began and this resulted in the withdrawal of public policies, exemplified by significant budget cuts. Prices of feed concentrates in livestock farming soared.

By mid-1980s, state-owned dairy farms were dismantled. On the positive side, smallholders adopted the idea of diversifying their sources of income by rearing cattle of imported origin while increasing production of milk. The progressive disengagement of the state from the dairy sector in the 1980s resulted in the emergence of private operators, both in farming and in milk processing. In this period, public authorities encouraged the creation of professional associations. In 1988, the National Cattle Breeders' Association (*Association Nationale d'Éleveurs Bovins - ANEB*) was officially created. ANEB took over some of the former public services, like extension services, artificial insemination and record keeping.

In 1992, the liberalization of milk prices throughout the value chain marked a new phase in the evolution of the dairy sector. This induced a process in which farm-gate milk prices stagnated while consumer prices steadily increased. This created room for the emergence of informal milk collection circuits to supply neighbouring cities, particularly in the North Western part of the country.

In cities like Casablanca, Rabat and Kenitra raw milk started to be sold in small shops locally known as *Mahlabates*. Overall, the sector kept on growing steadily to meet an increasing domestic demand.

In 2008 the government renewed its commitment to the prioritization of the agricultural sector through the adoption of the "*Green Morocco Plan*". This plan truly represents a roadmap for the development of Moroccan agriculture towards 2020 and places the development of value chains at the core of state policies. Support to the sector continues as the government aimed at reaching the target of 4.0 million tons of raw milk production by 2020. However, after 3 years' drought, milk production stagnated at 2.5 million tons in 2020!

2.2 The dairy chain

For the majority of cattle owners, living in the rural areas, livestock is part of their subsistence and their savings account. Milk is mainly used for home consumption and when extra cash is needed an animal will be sold for meat. With the development of milk outlets through milk collection centers and cooperatives, a gradual change towards more productive cows is taking place either through artificial insemination or the import of purebred animals. This development is clearly visible if we look at the population of the native Moroccan cattle population.

The three principal breeds, Brune de l'Atlas, Oulmès-Zaer and Tidili, are well adapted to harsh conditions, such as scarcity of feed and diseases, but their milk production and growth rate are low. Therefore, these native breeds have been used in crossbreeding programmes and consequently, their proportion within the total Moroccan cattle population decreased drastically from 95% in 1975 to 40% in 2019⁴. According to recent statistical data this figure is even lower.



Brown Atlas breed

⁴ A. Norezzine et al., 2020

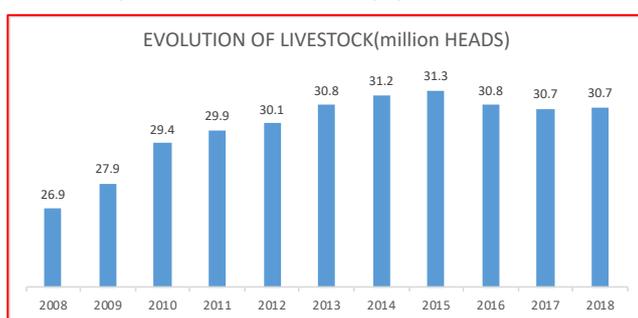
Morocco has a herd of about 3.5 million cattle according to the official statistics and calculations made by the Food and Agricultural Organisation (FAO) show around 1.8 million milking cows. These figures have been steadily increasing since 2000 as shown in Table 2.1 Milk production per cow/year increased substantially between 2000 and 2012, after which there seems to be some stagnation in yield per cow. Statistical information on cattle numbers and milk production should be treated as indicative, as most farmers do not keep any records, but it is clear that the total cow milk production has at least doubled over the past 20 years.

Table 2.1: Cattle numbers and production data (2000 – 2018)

Year	Total herd (k-head)	No. cows (k-head *)	Milk production (kMT/year)	Yield/cow (kg/year*)
2000	2,675	1,308	1,185	905
2005	2,722	1,400	1,400	1000
2010	2,896	1,485	1,900	1274
2011	3,038	1,588	2,200	1385
2012	3,029	1,555	2,500	1607
2013	3,173	1,606	2,300	1425
2014	3,239	1,699	2,400	1412
2015	3,291	1,724	2,450	1420
2016	3,300	1,729	2,500	1445
2017	3,364	1,760	2,450	1391
2018	3,441	1,797	2,550	1446

Source: FAOSTAT (FAO calculations (*) and official statistics)

Graph 2.1: Evolution of cattle population



Note: for 2018 the calculated milk production by FAO shows considerably lower figures than the official statistics, while 2012 also appears to be a special year with a much higher output than other years.

Average yields only show part of the picture, as it hides the performance of cows kept under different types of management and the effect of breed improvement. The herd's genetic structure⁵ is characterized by a huge heterogeneity:

- ◆ Cattle of local breeds, with less than 600 litres per cow per annum – some 30-40% of total cattle;
- ◆ Crosses between local and imported cattle breeds – this group represents up to 40-45% of total cattle and here we should expect yields of 2,500 – 3,500 cow/year;
- ◆ Purebred imported cows – these are specialised dairy breeds such as Friesian Holstein, Montbéliard and Fleckvieh. This genetic cluster represents some 15% of the Moroccan herd, but within this cluster we have high yielding farms and those that produce far below the genetic potential of the cows.

Geographically, around 65-70% of the total milk output originates from the large-scale irrigation schemes (see table and map on page 5), where most of the imported and improved cows can be found and milk collection systems are well developed.



For many years, efforts were made to improve the genetic potential of dairy cattle through imports of purebred pregnant heifers and the development of AI-services.

Now the focus should move towards improved nutrition, management and animal welfare to make optimal use of this increased potential for milk production.

⁵ Sraïri et al., 2015.

Tables 2.2 and 2.3: Herd composition (in k-heads)

Map ref.	Region	2010	2015	2018	2010	2015	2018	2010	2015	2018
		2 - 3 year			3 - 9 year			9 year or more		
		5	Béni Mellal-Khénifra	11.6	25.4	36.1	115.0	156.7	160.5	14.3
8	Drâa-Tafilalet	10.4	4.7	8.9	41.1	38.4	46.3	0.1	7.7	3.9
12	Eddakhla-Oued Eddahab			0.3			0.3			0.0
3	Fés-Meknès	52.0	44.5	54.0	128.4	148.0	154.3	6.1	18.5	16.2
6	Grand Casablanca-Settat	43.3	46.0	70.8	236.2	233.6	286.8	21.1	25.1	44.2
10	Guelmim-Oued Noun	0.9	0.7	3.0	0.8	0.7	3.0			0.0
11	Laayoune-Sakia El Hamra			4.3			4.3			0.0
7	Marrakech-Safi	55.5	31.0	32.6	192.3	212.5	158.2	22.0	61.5	84.5
2	Oriental	6.6	6.6	8.6	36.2	31.3	51.4	0.6	0.6	6.1
4	Rabat-Salé-Kénitra	53.8	36.0	59.3	192.6	177.6	223.4	22.3	28.8	30.1
9	Souss-Massa	18.0	29.6	25.8	99.6	95.7	66.6	0.2	5.8	3.0
1	Tanger-Tétouan-Al Hoceima	33.1	37.0	35.2	171.7	186.5	155.8	8.8	8.8	6.7
	Grand total	285.2	261.5	338.9	1,213.8	1,280.9	1,310.8	95.6	186.3	215.2



Map ref.	Region	2010	2015	2018	2010	2015	2018
		< 1 year			1 - 2 year		
		5	Béni Mellal-Khénifra	32.4	69.5	60.3	33.9
8	Drâa-Tafilalet	7.5	5.5	19.8	8.1	4.2	6.2
12	Eddakhla-Oued Eddahab			0.1			0.1
3	Fés-Meknès	26.8	36.3	54.5	38.3	27.6	25.6
6	Grand Casablanca-Settat	59.8	115.1	128.3	39.7	27.1	32.0
10	Guelmim-Oued Noun	0.2	0.2	1.4	0.4	0.2	0.7
11	Laayoune-Sakia El Hamra			1.3			0.2
7	Marrakech-Safi	68.3	99.2	84.9	37.3	38.9	32.3
2	Oriental	10.8	14.8	17.9	6.3	11.1	4.8
4	Rabat-Salé-Kénitra	37.8	50.9	69.6	49.4	50.1	27.6
9	Souss-Massa	24.9	13.4	21.1	21.8	21.4	13.6
1	Tanger-Tétouan-Al Hoceima	38.1	44.8	51.4	37.7	38.1	21.6
	Grand total	306.5	449.8	510.7	272.9	262.7	185.5

Except for the age group of 1-2 years, there has been a steady herd growth. The drought period of the last few years is likely to have caused a stagnation in herd development. The ratio adult cows (>2 years) and young stock is 27-29%, which is low in comparison to the standard for dairy farms. *At this ratio there will be a shortage of replacement stock and stagnation in herd development.*

It is estimated that 65-70% of the total milk production is collected and sold to the formal processing industry, while 10-15% is traded through informal channels. The remaining 15-20% is used for calf feeding and home consumption. This balance is more or less the same in 2019 as reported in 2013.

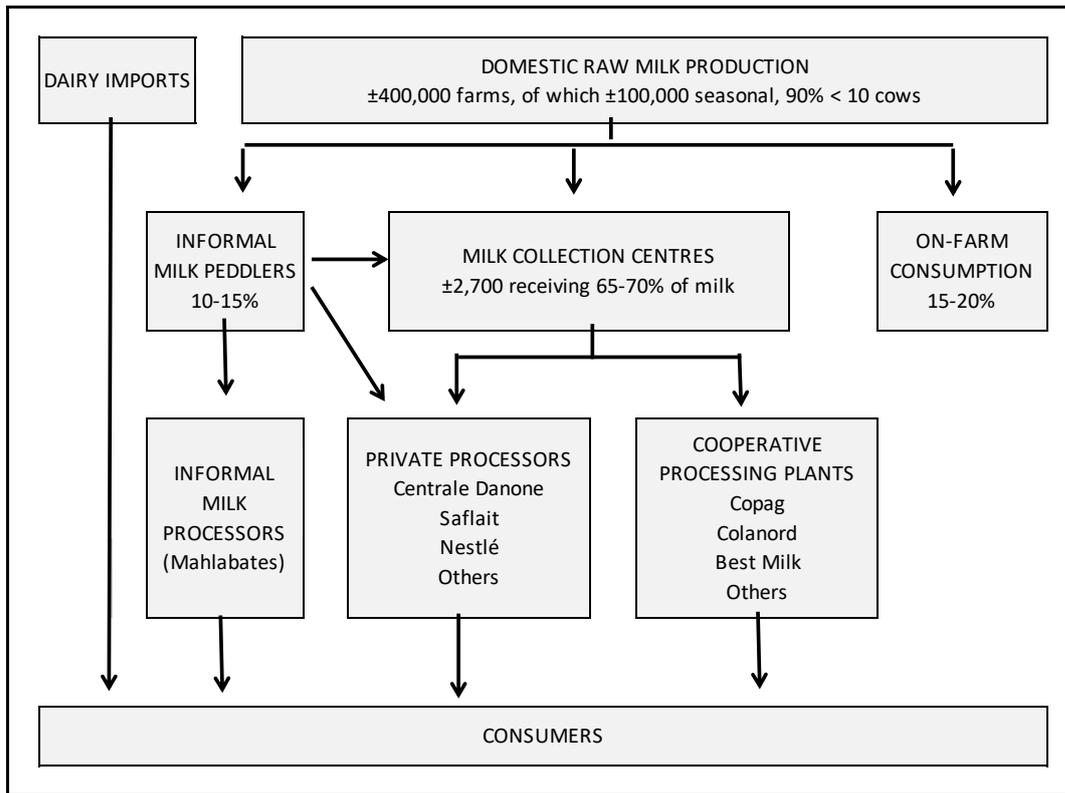
The milk processing industry is dominated by 5-6 companies that control some 80% of the total volume: Centrale Danone, Copag, Safilait and Best Milk. In addition, there are numerous medium sized and smaller processing companies, bringing the total to 82 processing companies. A consumer boycott targeted at several large companies in 2018 also hit Central Danone and caused a reduction in their dairy product sales of 30-40%. This resulted in a strong reduction in milk sourcing, forcing farmers to find other outlets for their raw milk. Some of the competitors took advantage of this situation, while a number of coops decided to start their own milk processing facility. Centrale Danone still struggles to regain its market share with new products and strong promotion.

The informal peddlers and processors still play an important role in the dairy chain. Their demands for milk quality are easier to meet for the local farmers and most of them have their own niche for selling their (processed) milk. The formal processing industry mainly depends on the urban areas and consumers that become more aware of food safety and health products.

Downstream, the Moroccan dairy chain will also have to adapt itself to evolving consumers' needs. This implies an increased effort to supply dairy goods at attractive prices and to produce value-added products of high quality to ensure a steady growth of consumption.

Water scarcity for irrigation and commercial use, animal welfare and climate friendly production systems are issues that need to be addressed to ensure sustainable growth of the sector.

Figure 2.1: Structure of the dairy chain⁶



The dairy chain will need to tackle a series of challenges in the near future. The most prominent one will consist in ensuring a steady increase in milk volumes, which implies the necessity to innovative measures to support smallholder farming:

- ◆ Increased productivity in cattle farming through genetic improvement and feeding according to animal requirements,
- ◆ Improved milk quality with a payment system that rewards quality at farm level, and
- ◆ Stimulating growth of more professional farming through investment support and technical advice in those areas where this is justified and sustainable.

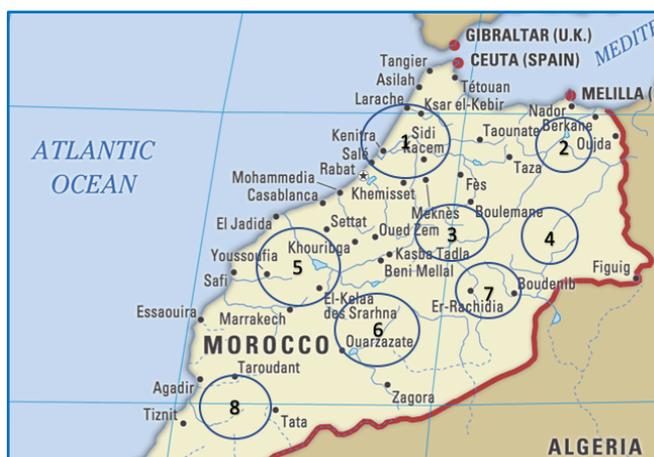
2.3 Farming systems

Milk production mainly takes place in the irrigated area and/or those with sufficient rainfall to grow fodder crops. Of the total milk production 65% is produced in these areas, but in view of the milk that reaches the formal processing industry this may even reach > 80%. Commercial development in these regions offers the best opportunities. Here farmers are in a better position to invest in farm development and it is easier to establish a service network for input suppliers. The table and map below show the irrigated areas and their contribution to the total milk production. The main areas will be discussed in more detail to present a picture of the various farming systems.

⁶ Based on Sraïri *et al.*, 2013 and updated

Table 2.4: the main irrigation schemes in Morocco and their milk shares.

No.	Name and location	Size, hectares	Share of milk output, %
1	Gharb/Loukkos	132,000	16.2%
2	Moulouya	77,000	2.5%
3	Tadla	109,000	12.3%
4 & 7	Oasiam	65,000	0.8%
5	Doukkala	104,600	18.0%
6	Haouz	142,000	8.1%
8	Souss Massa	40,000	7.2%
Total			65.1%



The **Gharb/Loukkos** irrigation scheme, located in the north western part of Morocco, is one of the most favourable areas for agricultural intensification in the country, given its mean annual level of rainfall above 500 mm and its fertile soils. The Gharb irrigation scheme has been identified as a strategic spot for the increase of the dairy output within the ongoing agricultural policies.



A survey of 70 farms showed a broad variety of farmers' strategies, particularly in economic and feeding efficiency, in types of breeding practices (intensification vs. extensive farming) and in functions devoted to cattle (milk and/or meat). The conventional cattle rearing of smallholder units and farms with an area less than 20 ha, shows numerous setbacks.

One of the most evident is farmer's lack of knowledge of animal nutrition. Farmers do not know the cows' dietary requirements at different stages of the lactation period, nor are they aware of the feeding values of the various crops in terms of energy and protein, which results in an inefficient use of concentrates. Results also showed that milk yields are well below genetic potential, given the limited availability of forage coupled to errors in ration formulation. *There is a need to reconsider the use of high genetic merit cows for this type of farmers unless they can make use of effective extension and veterinary services. A more gradual upgrading of genetic potential through artificial insemination (AI) is not only cheaper but also more sustainable and animal friendly.*

Of course, there are also a limited number of larger and more productive farms in the area, where yields of 8,000 kg/cow/year are achieved. These farms benefit from imported purebred dairy cows and have the managerial capacity to provide the proper conditions of nutrition, health care and housing to achieve good results.

Doukkala region is also known for its milk production, mainly produced by farmers with 2-10 cows.



Medium-sized farms are often owned by persons who obtain their main income from other sources and leave the daily management of the farm to hired hands. As in most regions, the milk is delivered to the local cooperative. A joint Dutch-Moroccan project aimed at the training of farmers and involving 10 cooperatives was carried out between 2016-2018. The size of the coops and their milk supply in that period is shown in Table 2.5. on the next page.

Part of the milk is collected by traders from non-members and sold to the collection center of the coöp. Especially for the larger coöps this is common practice, while the processing company that buys the milk has the advantage of collecting larger volumes at one location. Farmers deliver on average about 18 liters per day to the coöp, to which home consumption and calf feeding have to be added. This clearly indicates the size of the farms and the fact that these are mainly mixed farms. The pilot farms that were selected varied in size from 4 to 18 cows, some with pure HF cows, others with

Montbeliard or a mix of various breeds. Production levels varied from 13 to 27 kg/cow/day, mainly as a result of management skills.

Table 2.5: Milk supply of 10 coöps, Doukkala region (2017)

No.	Coop Members	Milk collectors	Max. daily supply (kg)	No. of suppliers	Average /supplier	Sold to:
1	98	17	9,900	800	12.4	Centrale Danone
2	52	2	1,200	116	10.3	Centrale Danone
3	175	3	6,100	325	18.8	Centrale Danone
4	159	9	8,000	500	16.0	Beni Mellal
5	60	7	2,700	60	45.0	Centrale Danone
6	94	0	1,800	130	13.9	Nestlé
7	175	4	4,100	240	17.1	Centrale Danone
8	100	0	2,300	100	23.0	Nestlé
9	40	0	320	40	8.0	Centrale Danone
10	119	3	2,400	119	20.2	Centrale Danone
Average quantity of milk per supplier/day					18.5	

The seasonal variation in milk deliveries is very high, as can be seen from the table below. The peak production is in spring, when fodder is available and in autumn supplies are at a minimum.

Table 2.6: Seasonal variation of 10 coöps in Doukkala region.

Item	Average	Minimum	Maximum
No. of members	107	40	175
No. of traders	5	0	17
No. of farmers	243	40	800
Milk supply (kg/day)	3,882	320	9,900
Milk per farmer	18.5	8.0	45.0
Raw milk price (Dh/L)	3.54	3.40	3.60

Maize and Lucerne are common fodder crops. Maize is used for silage making, while the Lucerne is mainly used for grazing and hay making. Fodder quality is often below standard as maize is harvested too early and the Lucerne too late. The storage of maize silage in bags also leads to considerable quality losses (too much air). Straw is fed in large volumes and as concentrate wheat bran is very popular. Dried beet pulp is a good source of energy and also available. Factory made concentrates were of good quality, but expensive in relation to the price of milk.

Record keeping is not very common, which makes it more difficult to analyse the performance of the cows (reproduction, milk yields, feeding volumes and production costs). This also leads to long calving intervals (at least 420 days) and long dry periods. Hand milking is common on the small farms, with little attention to hygiene.

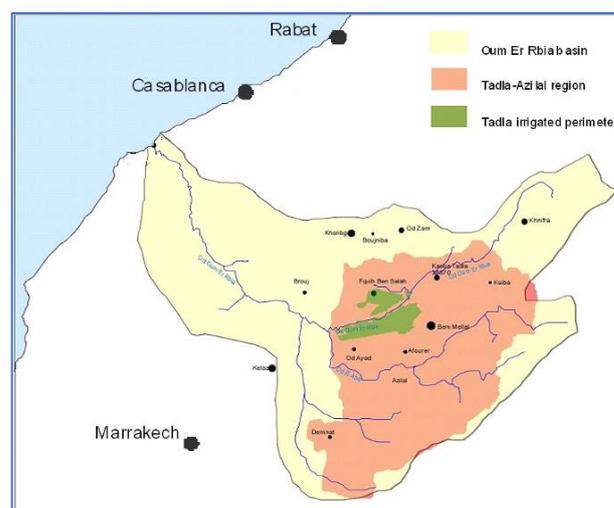
Housing conditions are basic, with little comfort for the animals and labour intensive for the farmer. Investments in improved housing are costly and therefore either not made or farmers opt for low-budget solutions. With project support several free-housing systems were introduced for demonstration purpose.



Housing conditions before and after...

Tadla region irrigates more than 100,000 hectares and is another important agricultural area in Morocco. The climate is arid to semi-arid, with about 300 mm of rain annually, most of which is received during the winter rainy season from November to March. The temperatures vary widely, being more temperate during the winter, but with peaks in summer reaching at times 45-50 °C.

The main irrigated crops in the area are fodder crops (alfalfa, maize), wheat, olives, citrus, and vegetables. Livestock production (milk, meat) also plays an important role in Tadla. The Tadla irrigation perimeter is suffering from water stress, leading to a lowering of the groundwater table in the area. Approximately 50% of the farms have private wells and about 10,000 wells are used in the schemes.



Tadla region



A joint Moroccan-Dutch project⁷ just started to support 24 medium-sized dairy farms in their management, with the aim to establish pilots for further development of the dairy business. The basic parameters for these farms are:

Average herd composition	
Adult cows	34.6
- in milk	24.8
- dry	9.7
Heifers > 2 years	2.4
Young stock 1-2 years	7.9
Calves < 12 months	13.0

Milk production: 19.2 kg/cow/day

Land size: average 27 ha (from 5 to 90 ha)

Main fodder crops and yield:

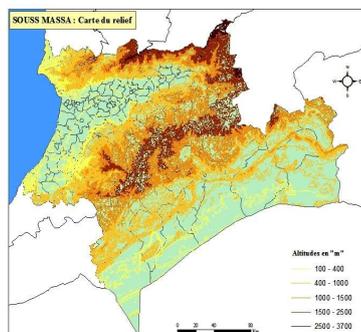
Maize	12 – 15 MT DM/ha
Alfalfa	22 – 25 MT DM/ha
Sorghum	13 – 17 MT DM/ha

Silage making is common, but the quality is not very high (maize too wet) and alfalfa hay is harvested too late, reducing feeding values.

The degree of mechanisation/automation on dairy farms remains marginal in smallholder dairy farms. This means that milking is mainly done by hand and machine milking can only be found in a minority of large farms.

Souss-Massa is situated in the south west of Morocco.

Relief map of Souss-Massa



⁷ Vers un élevage laitier durable dans la région de Tadla-Azilal

⁸ FAO Report on Souss-Massa and map: Jadaoui et al., 2017

Souss-Massa covers 53.711 Km² and has a population of more than 2.7 million, of which around 44% still lives in the rural areas, although urbanisation is increasing. The economy of Souss-Massa⁸ is based on three pillars: agriculture, tourism and fisheries. Agriculture and fisheries contribute 9 and 34% respectively to the national GDP. More than 90% of the agricultural production value comes from the Souss-Massa plains, that cover 30% of the total area. The Souss Massa region has gained its place as the largest producer of vegetables and citrus fruits with a GDP of 17,3% at the regional scale, and 9% at the national scale. The region has 451,165 hectares of cultivated farmland, of which more than 100,000 of which are equipped with drip irrigation.

The agricultural sector in the region has thrived remarkably under the operation Green Morocco Plan and has benefited from numerous structuring projects both upstream and downstream the value chain. Regional agricultural products are expected to develop substantially owing to the establishment and running of the Agropole Agadir, a project that aims to provide a well-established regional platform for food processing, marketing and distribution of agricultural products.

Livestock production is based on 2 types of farming systems: the intensive system concentrated in the plains and the extensive systems in the rainfed areas, around the mountains and the oasis. The region counted a cattle population of 169,100 heads in 2018 (130100 females and 39,000 males). Adult cows numbered 69,600 heads in 2018, while in 2015 this still was 101,500 heads. Young stock of different age groups shows less variation in heads. It seems safe to conclude that the drought of the recent years has had a negative impact on cattle population. Production levels were among the best in Morocco.

Most dairy farmers are members and suppliers of COPAG, the second largest milk processor of the country. Services for veterinary care, AI and farm inputs are well developed.

Between 2008 and 2012 studies were carried out to assess the environmental factors on milk production. One study focused on the milk production⁹ of 1st calving Holstein heifers raised on private farms and practicing modern and intensive farming. The results from the official milk control of 3,615 lactations records between 2008 and 2012 were analysed. A second study¹⁰, during the same period, covered 9,194 lactation records of 6,307 Holstein cows from 118 herds. Milk production, lactation length, calving intervals were evaluated in both studies. The 1st calving heifers had an average age of calving 28.8 (\pm 4.3) months, 6,144 (\pm 1,462) kg milk in 305 days, 222 (\pm 53) kg milk fat yield, 3.66 (\pm 0.52) % fat content and 325 (\pm 42) lactation days. For the cows in the 2nd study this was 6,578 (\pm 1,619) kg milk, 241 (\pm 62) kg fat and 3,7 (\pm 0,53) fat %.

In both studies the effects of calving season and year of birth had a significant impact: calving in autumn, with the peak production during the cooler winter period gave the highest milk yields, while variations in climatic conditions further added to the differences. The seasonal variation in milk production in Souss-Massa, with its (semi-) arid conditions is far more difficult to control than in the north of Morocco, with its moderate, subtropical climate with cool sea breezes from the Atlantic Ocean and the Mediterranean. This also explains why Copag, based in Souss-Massa has invested in milk powder production: to balance both raw milk supply and demand for dairy products throughout the year.



⁹ S. el Madidi: Effect of Some Environmental Factors on Milk Production of Primiparous Holstein Raised in the Souss-Massa Region in Morocco

¹⁰ A. Talbi and S. el Madidi: Effects of environmental factors on milk production of Holstein cows in Souss-Massa region of Morocco, June 2015

The Souss-Massa region is among the regions that suffer the most from water stress¹¹. The arid climate with low and irregular rainfall causes a considerable rainfall deficit which negatively affects the water resources in the region. Agriculture consumes more than 90% of the region's total water resources. As a result, surface water resources have become increasingly insufficient with regard to the demand and groundwater overexploitation has exceeded the renewable resources. In addition, high population growth, degradation of water quality, expansion of agricultural and industrial activity negatively affected water availability.

Precious water resources had to be diverted from the drought-hit agricultural heartland to households. For the past three years, the region has been struggling with a drought that exacerbated water resources and prompted authorities to make a painful choice.

In 2017 the government of Morocco signed an agreement with the international company Abengoa and the Moroccan company InfraMaroc to develop the world's largest seawater desalination project for irrigation and drinking water supply in Souss Massa region. This project is expected to secure the drinking water supply of the Grand Agadir and provide water for high-value-added irrigated agriculture of the area of Chtouka, but it will be several years before this plant is operational.

Water is the main challenge for the Souss-Massa region and it would be dramatic if the progress in agricultural development would be lost.

2.4 Milk collection, quality control and raw milk prices

In 2019 there were some 2,700 milk collection centres, with a capacity of more than 2.5 million litres of milk per day. Through this system of collection most of the milk for formal processing is obtained, with only the large farms directly supplying the dairy companies.

Earlier visits to several milk collection centers (MCCs) in Doukkala gave the impression that they were well maintained and clean, with a varying number of cooling

¹¹ Mansir Imane et al., 2017: Groundwater Resources Scarcity in Souss-Massa Region and Alternative Solutions for Sustainable Agricultural Development.

tanks according to milk intake and needed capacity. At reception the milk is tested with an alcohol test for freshness and a refractometer to detect added water. If the milk passes these tests, it is accepted and recorded.

The milk is then poured through a filter or cloth into the cooling tanks (all tanks with an open top). Milk is collected twice a day, during specific hours. Afternoon milk is less in volume, as part of the milk is used for calf feeding and home consumption. Although lactoscans were found at most collection centers, they seem to be used rarely.

Basic testing equipment at milk collection centers includes an alcohol-tester, refractometer and lactoscan. At one location a density-meter was found in use, while the quick Charm test is used in most places to detect inhibitors such as antibiotics (mainly if the milk is suspected).



The raw milk price paid by the processing companies depends on several factors:

- ◆ **Seasonality:** in Morocco milk prices are related to seasons. From spring until summer, when milk production is high, the price is low and around 2.5 MAD/l, while during the winter season the price of milk often exceeds 3 MAD/l. The seasonality of prices mainly concerns small farmers, with less than 25 cows and small unstructured cooperatives, that deliver less than 2 tons of milk.
- ◆ **Milk composition and quality:** this mainly concerns farms with more than 100 cows and the medium- and large-sized cooperatives. Milk quality in Morocco mainly depends on the absence of antibiotic residues, the absence of coliform germs, while fat and protein must be above 3.5% and 3.0% respectively. The milk price remains stable throughout the year and can vary from 3.5 to 4.5 MAD/l depending on the quality.
- ◆ **Milk processing company:** for dairy plants that receive milk only from members of its cooperative (e.g. Copag and Agroplus) the purchase price of milk is stable all year around at an average of ±4

MAD/l. For dairy plants that collect milk from all farmers, the price depends on seasonality, the size of the farm and the quality of the raw milk as mentioned above.

A representative of Danone indicated that milk quality was often below standard, partly due to nutrition and hygiene (affecting composition and keeping quality).

The lower quality results in average prices of 3.3 – 3.6 dirham/kg, which is well below the price individual farmers obtain (3.8 – 4.1 dirham/kg). Individual farmers pay more attention to quality and this pays off. Larger coops tend to get a slightly better price, because the larger volumes of raw milk make them more attractive. Their milk quality is similar to the small coops and would also need improvement.

A pricing system based on composition and quality stimulates farmers to make improvements, but this would mean individual testing and payment. If the coops get paid according to the quality of the tank milk and subsequently divide the income according to volumes, farmers will not have any incentive to improve their milk quality.

It was reported that FIMALAIT is planning to create laboratories dedicated to milk quality analysis. These laboratories are to be located in the most prominent regions of dairy farming in Morocco, namely the Doukkala, Gharb and Tadla regions. These regions are expected to become more prominent as there is enough water to allow a sustainable development of the dairy sector. New laboratories would be an important step towards quality control, but will require good governance and good collaboration within the dairy chain.

2.5 Processing industry

As mentioned earlier, around 65-70% of Morocco's milk production of 2,500,000 tons/year is processed by the formal sector, while another 10-15% is processed by informal operators. The remaining 15-20% are used on-farm, for home consumption and/or fed to calves.

The Moroccan industrial milk processing sector comprises around 82 companies, classified into three categories:

- ◆ 6-8 large companies (> 100 t/day);
- ◆ ± 30 medium-sized companies (10-100 t/day);
- ◆ ± 45 small dairy processors (2-10 t/day)

In addition, an unknown number of workshops (mahlabates) operate in the informal milk processing. These are small shops found in urban areas and have strong business opportunities.

Because of the ongoing trend of urbanization, this sector is likely to continue representing an important contribution to the Moroccan urban dwellers' supply of dairy products. A question then remains if these workshops can meet the requirements for food safety and if they should have a license before they can operate.

The main stakeholders in the dairy processing sector are:

- ◆ **Centrale Danone**, with Danone controlling 96% of its capital, is the main dairy processing company in Morocco with 120,000 milk suppliers and around 30% of the total production volume. As a result of the boycott of 2018 sales dropped by 30-40%, leading to an oversupply of milk and subsequent rejection of suppliers that had the lowest quality. Meanwhile Centrale Danone recovered its position and with its wide range of products also aims to get access to neighbouring emerging markets in North African and Sub Saharan countries;
- ◆ **Copag** was established in 1987 by 39 citrus farmers and has developed into a cooperative with more than 7,000 employees and 20,000 members, of which 95% are smallholders. Copag covers three major sectors: fruits, milk and meat. They have their own breeding farms, slaughterhouse and services.

The brands are Copag Delight, Jaouda and Jayda. In dairy Copag processes at least 11% of the total production and is still expanding.

- ◆ **Nestlé** started its operations in Morocco in 1992 in the city of El Jadida, with the Doukkala-Abda region for raw milk sourcing. Throughout the years further investments were made in milk processing capacity and the range of dairy products. Reportedly Nestlé collects milk from some 16,000 farms, who also receive support and training to develop their farms and improve milk quality. The most recent investment was made into a station for solar energy (2,600 panels that will produce 1.7 gigawatts/year and reduce CO2 by 1 million kg).

- ◆ **Safilait** was established in 2006 and has grown into Morocco's third-largest dairy player with its Jibal® brand and specialized in the processing, packaging and sale of fresh milk, UHT milk and fresh dairy products. In 2014 Safilait already employed nearly 1,300 people, when the Bel Group acquired almost 70% of the shares. Bel was already present in the country since the 1970's and operates a plant in Tangers that produces The Laughing Cow®, les Enfants® and Kiri® cheese. Bel is the leading player in the Moroccan cheese market.

- ◆ **Best Milk**, with its brand 'Le bon lait' was established in 2006. It is the fourth largest dairy company and based in Marrakech. After a difficult period in 2014 the Anouar Investment Company, together with Credit Agricole became the main shareholders and since then the company has developed further. In 2018 the company strongly competed Danone in the Tadla region, when it saw an opportunity to take over suppliers of raw milk by paying more attractive prices.

- ◆ **Colainord** is a dairy cooperative located in Tétouan, employs 580 persons and produces about 60,000 tons/ year of pasteurised milk, UHT milk, yoghurts, fermented milk, butter and fresh cheese. Several years ago, Colainord joined the MED TEST project in order to identify opportunities regarding the rational use of resources (water and energy), the valorisation of by-products, the reduction of production costs and the minimization of pollution loads. The company was already engaged in a wastewater treatment.

- ◆ **Les Domaines Agricoles** is an enterprise with 8,500 employees, established in 1960 with farms all over Morocco for the production of fruits and vegetables, milk and beef. Its brand Chergui includes pasteurized milk, various yoghurts, desserts, a juice with milk and cheese. The milk comes from the own herd of cows and goats, with an annual production of 9,500/cow and 1,100/goat. This shows what can be achieved under good management.

There is a strong competition between the dairy companies, not only for milk sourcing (obtaining larger volumes and better quality), but also for the dairy products with high margins, such as yogurts and cheese.

Milk traders mainly use the informal marketing channels and as such do not pay any taxes like the formal processing industry and there is little or none control on food safety and quality. However, these informal circuits do accommodate farmers and consumers, as farmers selling directly to small shops do not have to comply with complicated procedures of quality and payment, while consumers pay lower prices for fresh milk and traditional dairy products (e.g. buttermilk, locally known as *iben*, and yogurts locally known as *raib*). Importantly, these circuits are tolerated by local authorities because of the important social and economic roles they play. In fact, they provide steady incomes for a large number of families.

Recombining milk is marginal because of high duties on imported milk powder and dairy derivatives. Imports mainly occur in periods of drought and to cater for an increased demand, like during the Holy month of Ramadan.

Another challenge is the strong seasonal variation in milk supply, which makes it difficult for the processing industry to balance supply & demand. In spring the dairy companies receive more milk they can deal with, while in summer/winter demand is higher than supply. This variation is also reflected in the raw milk prices. Investments were to be made in 3 new milk powder plants to reduce the dependence on imported powder and to have a stable supply of dairy products throughout the year.

All dairy companies play an important role in the support of their milk suppliers: imports of heifers, technical advice and other measures to increase milk quality and production.

2.6 Consumption of dairy products

Milk consumption has gradually doubled between 1975 and 2014, after which consumption stabilized or even decreased a little during recent years. The government was aiming for a consumption of 90 kg/caput/year in 2020, but neither the total milk production nor actual demand made this possible. An estimated 94% of the total demand is produced locally.

The quality of life in Morocco has steadily improved over the past decade and with an emerging middle class in large cities and a strong tourism industry, the Moroccan society is increasingly embracing a Western lifestyle. These changes have influenced Moroccan consumers' consumption patterns. Packaged food and healthy

choices are among the fastest growing segments within the food and beverage industry. Milk and dairy products are part of the daily diet, but still well below European standards.

Table 2.7: Milk production and consumption

Year	Milk production in '000' MT	Consumption (milk equivalents)
1975	450	35
2010	2,040	64
2014	2,400	70
2015	2,450	69
2016	2,500	70
2017	2,450	69
2018	2,550	70
2019 *	2,500	69
2020**	4,000	90

Source: government statistics

* Estimated ** Planned

The main categories of dairy products produced by Moroccan processors are:

- ◆ Liquid drinking milk – this accounts for more than 75% of the total milk volume processed, some 49.2 kg per capita per year.
- ◆ Yoghurts and yoghurt drinks – some 16% of total volumes, with an average per capita consumption of 13.6 kg annually.
- ◆ Cheese – Moroccan per capita consumption is around 1.0 kg annually. Cheese consumption is increasing at an annual rate of 5%.
- ◆ Butter – per capita consumption is around 1.4 kg annually; a significant part of the entire volume is imported.

The consumption prices as found in supermarkets vary according to brand and quality.

Table 2.8: Prices of selected dairy products (2020)

Product	Unit	Price range Dh	Price range €
Pasteurized milk	litre	6 - 8	0.56 - 0.74
UHT milk	litre	7 - 9	0.65 - 0.84
Yoghurt	100 gr	2 - 15	0.19 - 1.40
Gouda cheese local	kg	30 - 50	2.79 - 4.65
Gouda cheese imported	kg	70 - 100	6.51 - 9.30

Source: Own data collection

The products of Centrale Danone are used as the reference prices for all dairy products in Morocco. In yoghurt prices there is much variation as there is a large variation in product: plain yoghurt, fruit yoghurt, imported brands and local brands. Over the years the price of pasteurized milk has been fairly stable, certainly in relation to the raw milk prices, as shown in Table 2.9 on the next page.

Table 2.9: Comparison raw milk and consumer milk price.

Year	Farm gate price (DH/litre)	Farm gate price (€/litre)	Consumer milk price (DH/litre)	Consumer milk price (€/litre)	Share of farm gate price in consumer milk price (%)
2000	2.94	0.27	5.40	0.49	54.4
2005	2.94	0.27	6.20	0.57	47.4
2010	3.00	0.27	6.40	0.58	46.9
2015	3.40	0.30	7.00	0.63	48.6
2020	3.60	0.33	7.20	0.66	50.0

Source: based on Srairi (2015) and own data collection

2.7 International trade in dairy products

At the present level of consumption, which is about 70 kg milk equivalent per capita/year, Morocco is almost self-sufficient. Imports are mainly needed for the more luxury products, such as cheese and butter. Milk powder imports have gone down substantially with the development of the Moroccan dairy sector.

The government still expects a substantial increase in production and demand, but based on recent articles and data it seems more likely that a balance has been reached. Processing plants are now eager to develop more value-added products to boost their marketing and substitute imports.

The origin of dairy imports varies according to product: France is the major supplier of milk & cream and fermented products, while the Netherlands are an important source for whey and other products and cheese. New Zealand and Ireland control more than 50% of the market for butter.

Exports of (processed) cheese and curds take place to Lebanon, Qatar and Saudi Arabia, while Mauretania and some neighbouring countries are the main clients for the other dairy products. Export volumes have gone down in recent years.

See tables 2.10 and 2.11 for import and export data.

Table 2.10: Import of dairy products 2015 – 2019 (MT and '000 US\$)

Commodity	2015		2016		2017		2018		2019	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Milk & cream, non-concentrated	1,878.6	3,711.8	1,986.7	3,705.6	2,295.4	5,218.8	2,922.6	7,188.7	3,172.3	7,401.8
Milk & cream, concentrated	4,397.2	9,652.6	4,026.5	8,321.9	6,902.8	15,468.3	..	18,229.5	7,698.5	17,924.4
Fermented products (e.g. yoghurt)	26.1	66.6	56.0	140.7	62.3	156.0	106.0	265.5	695.2	2,300.7
Whey and other milk-based products	19,287.6	42,132.4	19,427.7	36,672.8	23,921.9	51,520.4	26,712.6	49,228.1	24,544.5	49,582.6
Butter & other fats	20,370.3	72,401.9	24,198.5	79,258.4	20,287.5	98,702.7	18,464.9	96,104.9	15,519.1	70,279.2
Cheese and curd	16,712.6	65,754.2	17,944.1	66,882.7	20,156.9	86,913.1	24,229.8	109,776.7	22,463.7	98,851.5
Total value imports:	193,719.5		194,982.1		257,979.3		280,793.4		246,340.2	

Source: TrendEconomy

Table 2.11: Export of dairy products 2015 – 2019 (MT and '000 US\$)

Commodity	2015		2016		2017		2018		2019	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Milk & cream, non-concentrated	677.5	701.4	2,073.6	2,969.6	749.3	938.8	752.2	864.2	953.2	802.7
Milk & cream, concentrated	115.4	343.8	99.3	315.7	545.9	601.4	1,198.5	2,433.2	2,066.1	2,453.1
Fermented products (e.g. yoghurt)	4,101.5	5,953.9	2,279.7	3,032.6	3,654.5	4,532.5	2,511.5	3,049.3	1,608.6	2,015.2
Whey and other milk-based products	111.0	256.7	237.0	550.9	156.0	396.3	59.4	42.1	105.4	365.3
Butter & other fats	43.9	82.2	157.2	423.6	78.6	522.6	16.9	55.9	5.8	48.7
Cheese and curd	18,411.9	104,896.6	16,604.9	93,517.5	11,390.0	65,210.4	8,705.2	56,861.5	8,268.6	50,654.1
Total value exports:	112,234.6		100,809.9		72,202.0		63,306.2		56,339.1	

Source: TrendEconomy

2.8 Institutional Environment

The role of the Government, mainly through the Ministry of Agriculture, is crucial in the development of the total agricultural sector, including the dairy sub-sector and will be discussed in Section 4. Here we will look at the main organisational structures that represent the various stakeholders of the dairy sector.

The establishment of the Green Morocco Plan in 2008 prompted the need for each commodity chain to create its own representative body. As a result, FIMALAIT (Fédération Interprofessionnelle Marocaine du Lait) was created in 2009. This inter-professional body brought together representatives of dairy farmers, milk collection cooperatives and milk processors.

During its creation, a number of trust related issues emerged due to a lack of clear governance mechanisms within the organization. Not all processors accepted the idea of discussing sensitive issues with regard to the dairy chain, while Centrale Danone insisted on having its own group of suppliers (namely the Fédération Nationale des Producteurs Laitiers - FNPL) to be represented in FIMALAIT instead of ANEB (*Association Nationale d'Éleveurs Bovins*) as the overall representative of livestock farmers at the national level. Subsequently ANEB and FNPL merged into FENEPROL (Fédération Nationale des Eleveurs Producteurs Laitiers), which is meant to constitute the unique representing body of dairy farmers at the national level. On the milk processing side, private companies as well as cooperatives formed the Fédération Nationale des Industriels Laitiers (FNIL) and this entity is also represented in FIMALAIT.

FIMALAIT became the only legitimate body to represent the dairy chain. It was therefore eligible for public funds and public programs destined to the development of the dairy chain. ANEB took over some of the former public services, like extension services, artificial insemination and record keeping. The ANPVR (*Association Nationale des Producteurs de Viande Rouge*) is another important player in the dairy chain, as milk and beef production are closely related. [Early 2020 the government decided to establish MAROC LAIT as the new organisation that would take over the role of FIMALAIT.](#)

2.9 Beef production

Cattle production is largely based on a mixed farming system, certainly in the rural areas. When milk production becomes less attractive, farmers easily switch to beef by selling (young or less productive) females.

Even under good conditions for dairy farming, there will always be a substantial market for culled cows and male stock. [At present there is an overproduction of beef, due to the recent years of drought. Beef prices have already dropped and unless feed prices and availability improve, the livestock sector will find it hard to recover.](#)

The government plays an important role in the development of the red meat sector and pursues the following objectives:

- ◆ The integration of the sector into the international economic environment;
- ◆ Strengthening the contribution of the red meat sector to guaranteeing the country's supply of animal protein;
- ◆ Promoting investment and creating new jobs;
- ◆ Improving productivity and competitiveness to reduce production costs;
- ◆ Contribution to rural development and improved incomes for farmers;
- ◆ The direction of new investments in the development and marketing of animals and meats;
- ◆ The incentive for the emergence of meat cutting and upgrading workshops;
- ◆ Encouraging the value of meats for better added value (cutting, processing, distribution);
- ◆ Improving the terms of commercial transactions;
- ◆ Creating a true market for quality, competitive and competitive meats

To reach these objectives contracts were signed between various ministries and the Interprofessional Federation of Red Meats "FIVIAR.

As far as the red meat of cattle is concerned, the following measures were designed to improve productivity at farm level:

- ◆ Production of calves from commercial crossings;
- ◆ Control of contagious diseases.
- ◆ Development of modern cattle breeding units;
- ◆ Creating cattle feeder units;
- ◆ Upgrading beef farms

Table 2.12: Population of male cattle (k-heads)



Map ref.	Region	1 à <3 year			3 year and more			<1 year		
		2010	2015	2018	2010	2015	2018	2010	2015	2018
5	Béni Mella-Khénifra	30.5	26.5	22.3	0.4	2.0	6.7	29.7	63.7	82.3
8	Drâa-Tafilalet	15.3	14.8	5.5	0.0	0.4	1.7	14.2	14.3	18.5
12	Eddakhla-Oued Eddahab			0.1			0.0			0.1
3	Fés-Meknès	44.5	47.5	31.3	5.9	10.4	8.0	29.6	50.2	90.6
6	Grand Casablanca-Settat	56.4	46.1	38.4	2.2	4.6	14.8	59.0	94.6	147.7
10	Guelmim-Oued Noun	0.1	0.5	0.9			0.4	0.1	0.4	1.7
11	Laayoune-Sakia El Hamra			0.8			0.1			5.5
7	Marrakech-Safi	49.5	42.3	34.6	6.4	1.5	8.5	69.2	103.0	99.5
2	Oriental	6.9	9.6	6.6	0.9	4.2	4.7	11.3	14.6	22.2
4	Rabat-Salé-Kénitra	23.7	50.3	17.2	4.7	38.4	9.4	44.1	53.5	88.0
9	Souss-Massa	13.7	24.6	13.0	0.2	2.7	3.6	21.1	20.1	22.1
1	Tanger-Tétouan-Al Hoceima	35.4	41.6	14.8	1.5	13.1	8.6	37.2	54.1	50.1
	Grand total	276.1	303.8	185.3	22.0	77.4	66.5	315.5	468.7	628.2

Source: Government statistics

The marketing of live animals and meat was to be improved to (1) enable farmers to carry out their commercial transactions in better conditions and (2) improve their incomes by selling higher quality meat.

This was to be achieved through:

- ◆ Development and better equipment for cattle markets;
- ◆ Improvement of temporary markets for Aid El Adha;
- ◆ Creating large integrated and aggregation projects;
- ◆ Upgrading communal slaughterhouses;
- ◆ Modern meat distribution units;
- ◆ Improved meat cutting, packaging and processing units.

Animals are brought to local markets for sale to either butchers or for further use on farms (milk or beef). The conditions at these markets are quite basic and the handling of animals would not meet EU-standards for animal welfare. Slaughter houses show similar conditions and various reports from animal welfare organisations have already been published to create more awareness among consumers and government to improve this situation. It is therefore a positive sign that these aspects are fully integrated in the development program.

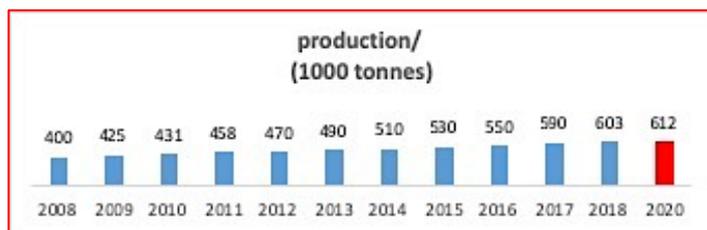
In addition, the government made efforts to improve the framework conditions of the sector by:

- ◆ Upgrading the National Interprofessional Office for Cereals and Legumes (ONICL);
- ◆ Support for FIVIAR member professional organizations;
- ◆ Actions to promote the sector;

- ◆ Management and training of traders at the training centre;
- ◆ National Cattle Identification and Traceability System (SNIT);
- ◆ Research and development.

Total red meat production increased from 400,000 tons in 2008 to 603,000 tons in 2018, almost the target value in the Green Plan. Now production surpasses demand.

Graph 2.2: Beef production (1000 tons – 2008 -2018)

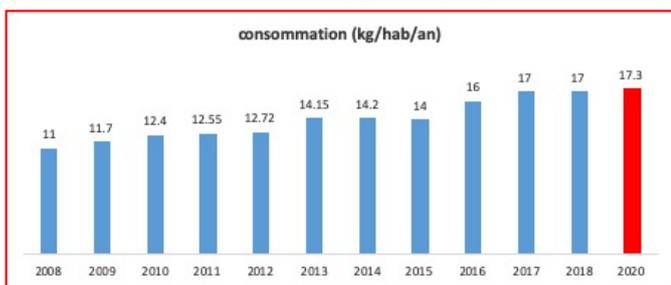


Source: Government statistics

This increase was largely related to the improvement in average carcass weight from 180 to 245 kg/head for cattle through genetic improvement. Young bulls are imported (Charolais and Limousine) to boost beef production (see also Table 3.1 for trade figures on non-purebred cattle). Artificial insemination increased from 299,000 to 610,000 inseminations for beef cattle between 2008 and 2018: an increase of 104%.

Red meat consumption was to increase from 11.0 in 2008 to 20 kg/capita and reached 17.3 kg in 2020. Thus 98% of the demand is covered through local production, supported with some imports of animals for further fattening or direct slaughter.

Graph 2.3: Consumption of beef (kg/capita/year)



Source: Government statistics

The development of the meat sector also led to the creation of jobs in the various links of the production chain, processing and in the marketing and distribution channels of meat and meat products. In addition, this sector also plays a key role in the supply of raw materials (wool, hides, leathers) to the industry and crafts.

Further achievements can be summarized as:

- ◆ Publication of Decree 2-12-612 on traffic and control of food safety;
- ◆ Regulations on health accreditation and delegated management of community slaughterhouses;
- ◆ Construction of 6 approved private slaughterhouses Meknes, Beni Mellal, Taroudant, Sidi Bennour and 2 in Fez);
- ◆ Upgrading of 6 communal slaughterhouses (Kalaa Sraghna; Ain Aicha; Ksar El Kebir, Laayoune; Touissit and Ouarzazat);
- ◆ Implementation of the master plan for future slaughterhouses and livestock markets in collaboration with the DGCL and ONSSA.
- ◆ Organizing awareness days for local authorities in the various regions of the Kingdom;
- ◆ Operation Aid Al Adha: identification of animals for the slaughter of Aid (8 million head in 2019) and installing 30 temporary souks for the marketing of animals.
- ◆ Construction of 2 cattle markets (Sidi Bennour and Ksar El Kebir) was launched;
- ◆ 203 training sessions were conducted in the meat trade for the benefit of 7,069 beneficiaries (professionals, students, agricultural advisors and African executives).

An important side-product of the beef industry are the hides and skins. Morocco has a strong leather industry, both for half products as final products. Leather clothes, shoe and bags are produced mainly for export.

Italy is the main buyer of Moroccan bovine and equine hides, with a share of 69% in the total export value.

Spain and France follow with 10% and 7% respectively. The import of similar products is spread over a larger number of countries, with Italy supplying 14.4%, France 12.9% and Portugal 7.6%. The Netherlands supply 3.1%, with an approximate value of 3 million US\$. The share of hides and skins that are further prepared after tanning is 63% of the imports and 61% of the export values. The remaining value covers related products or different stages of preparation.

Organizationally, the sector is represented by the Interprofessional Federation of Red Meats (FIVIAR). This Federation, created in April 2008, brings all stakeholders together:

Production:

- ◆ The National Association of Red Meat Producers (ANPVR);
- ◆ The National Ovine and Caprine Association (ANOC);
- ◆ The National Association of Cattle Breeders (ANEB);
- ◆ The Agricultural Cooperative (COPAG).

Valuation and Transformation

- ◆ The National Halal Meat Processing Association (ANTVH);
- ◆ The Moroccan Association of Meat Manufacturers (AMIV);
- ◆ The National Association of Private or Privately Managed Abattoirs (ANAP).

Marketing

- ◆ The National Association of Horses (ANC);
- ◆ The National Association of Butchers (ANB).

Table 2.13: Import & export of hides and skins 2015 – 2019 (k-US\$)

Year	2015	2016	2017	2018	2019
Export	47,999	39,911	43,039	45,736	42,068
Import	118,965	130,197	125,803	107,450	102,678

Source: Government statistics

Copag feedlot for 7000 bull calves



3 Policy and business environment

3.1 Government Policy

The Moroccan Government plays an important role in the development of agriculture, as already mentioned in section 2.8. In 2008 the government introduced the 'Green Morocco Plan 2008 - 2020' with the aim to:

- ◆ Safeguard the economic and social stability in the country;
- ◆ Assure food security for a growing population and increased demand as result of the higher standards of living and further urbanisation;
- ◆ Provide sustainable employment for the rural population of 14 million persons and to improve their livelihoods.

The government was already aware that Moroccan agriculture provided many opportunities, but also faced serious challenges as shown in the table below.

Note: the dairy sector does not have the same export potential as there is for fruits and vegetables, but once the raw milk quality reaches international standards, export opportunities in the surrounding countries will increase. Meanwhile the domestic market offers opportunities for value-added products and import substitution.

The Green Morocco Plan (GMP) had to include supportive measures for the modern farming systems (mainly in the irrigated areas) and the rural areas with less favourable conditions and smallholder systems. Therefore, two building blocks were designed:

- ◆ Make agriculture a lever for growth during the next 10 to 15 years.
- ◆ Adopt aggregation as an organizing model for agriculture

Aggregation is to be a solution to get around the issue of small farms and to face the challenges related to the lack of organization in the agricultural sector through a stronger involvement of the agroindustry. Through so-called 'Aggregation Projects' production, value addition and commercialization of agricultural products can be improved under the guidance of an 'aggregator', e.g. a dairy company such as COPAG, who has management, financial and technical expertise that permits the optimization of the production process. In principle this approach should create a win-win situation for all stakeholders. The form of aggregation may differ per project, region or product, but in all cases, it should involve technical support, joint investments to increase production and product quality and further end-market development. The Government plays a supporting role through the Ministry of Agriculture, ADA and regional supervisors and provides preferential access to finance, property and other privileges.

Opportunities	Challenges
<ul style="list-style-type: none"> • Comparative advantage for fruit & vegetable production in irrigated areas; • Existing examples of strong integrated agri-businesses; • Export potential to EU and surrounding African countries; • Growing domestic market; • Strong working force; • Potential for diversification and intensification of production systems. 	<ul style="list-style-type: none"> • Lack of organisational structures within the product chains; • Traditional production systems, with lack of modern skills and know-how; • Insufficient investments in (farm) development; • Limited water resources and risks of over-use; • Land parcelling and fragmentation; • Cereal crops on 75% of arable land, but contributing 10-15% of the revenues and using 10% of the labour force.

This approach and large diversity in national agriculture (intensive and extensive systems) resulted in a strategy with two major pillars and supporting measures:

Pillar I focused on projects that generally depend on private financing and develop highly-productive or high added value **modern agriculture** in high-potential agricultural zones (irrigated or favourable non-irrigated zones) and can be either individually, or within the framework of an aggregation project. State support for the implementation of projects depends on financial support for investments through the FDA (Agricultural Development Fund), with specific aid for aggregation projects. The Pillar I strategy was to cover 961 aggregation projects, include 562,000 farmers and use of 75 billion DH in investments.

Pillar II concerned the development of solidarity agriculture and is meant to improve production in both vegetal and livestock sectors in unfavourable zones, in view of improving the farmers' agricultural revenues. Pillar II projects should be economically viable projects that essentially depend on direct aid from the State. They also consider the conservation of natural resources. Three types of Pillar II projects were proposed:

- ◆ Conversion projects: transforming current production systems, dominated by cereal production, into high value-added crops, such as olives (77%), almonds (9%), figs, etc.
- ◆ Intensification projects: improving the existing base for livestock production (for example ANOC) and vegetal production sectors, mainly through extension and guidance. This category concerns 400,000 ha.
- ◆ Diversification projects; promotion of special or regional products to help create additional sources of income (saffron, honey, medicinal plants, etc.).

This type of projects does not exclude the possibility of creating a partnership, between a private aggregator and a Pillar II project cooperative, and of signing a contract to contribute to greater added value and commercialization potential of production generated by the project.

Pillar II projects were to be financed by the Moroccan banking system (banks, micro-credit companies) and international sponsors within a long-term partnership agreement. Overall, the Pillar II category planned to undertake 545 solidarity projects, with a budget of 20 billion DH, to the advantage of 855,000 farms.

Various articles and studies were conducted to review the results of the GMP¹² and although there appears no doubt that the GMP made a significant contribution to the modernization and development of agricultural value chains, concerns focused on the definition of farms and their sustainability, especially in the rural areas. Professional farms and agro-companies are in a better position to apply for loans and credit, while increased exports of agricultural are strongly promoted.

In a presentation¹³ the Ministry of Agriculture gives a review of the achievements of the GMP. Besides the increase in milk production and consumption, the dairy sector showed growth till 2015/2016 after which the drought caused stagnation. During the GMP period 149,142 heifers were imported, of which 45,000 were subsidized with ± 400 Euro. A start was made with milk recording and control in which 654 farms are participating with a total of 47,760 cows. This is a basis for selection of breeding stock. Investments were made in the renovation (711) or establishment of MCCs (338) and new legislation on milk quality and sanitation has been introduced. Farms were upgraded or established, including 5 new large-scale farms. 3 new milk powder plants were planned, but only in Souss Massa 1 plant was expanded. Training sessions were conducted for farmers, technicians, inseminators and milk control staff.

Investments were made both by the state and the private sector (in billion Dirhams):

	Planned	Realized
State	1.27	1.19
Private	5.34	4.81
Total	6.61	6.00

The main investment items were:

- ◆ New large farms
- ◆ Import of heifers and improved housing and farm equipment
- ◆ Expansion of dairy plants

¹² Nicolas Faysse, 2015, Megan Perry, 2015

¹³ Ministry of Agriculture, 2020

Generation Green 2020 – 2030

The new agricultural development plan, called 'Generation Green' will cover the period 2020 – 2030. Not all details for this plan have been published yet, but the outlines are clear and cover 5 main areas:

- ◆ Improvement of milk production and efficiency:
 - Continuation of subsidies for genetic improvement;
 - Advisory services to professional farms and milk recording development with specialised companies;
 - Improvement of forage production and availability.
- ◆ Stimulating local consumption of dairy products:
 - Promotional and informative campaigns on dairy products;
 - Public information to counteract disinformation about dairy products;
 - Improved use of social media to educate and spread information.
- ◆ Improvement of product quality and sanitation:
 - Intensive control on sales of unprocessed milk in the outskirts of the urban areas;
 - Reducing the total sales of informal trade in milk and dairy products;
 - Better regulation of mahlabats and upgrading of milk collection centres.
- ◆ Targeted support to adding value in the total dairy chain:
 - Increased milk powder production
 - Improved packaging and milk processing at mahlabates
- ◆ Strengthening of research and development.

Specific targets to be achieved as a result of the program are:

	<u>2019</u>	<u>2030</u>	
Total milk production	2.5	3.5	Billion litres
Yield/cow/year	3,000	4,500	Litres
Informal sales	30%	10%	
Powder plants		3	New plants

Note: informal sales were previously estimated at 10-15% of total production.

3.2 Animal Welfare

As Morocco is member of the World Organisation for Animal Health (OIE), it has committed itself to comply with the animal welfare standards established by the OIE. Since the OIE is not an enforcement body, every Member Country has to ensure itself that the standards are complied with by introducing the corresponding legislation and enforcement tools.

Morocco has not yet adopted any animal welfare legislation, which means that there is no regulatory framework that lays down specific rules on the protection and welfare of 'farm' animals during transport, handling, on-farm management, in trade or during slaughter. Accordingly, there is also a significant lack of official controls concerning animal welfare.

In various articles animal welfare organisations in Europe expressed their concern about the well-being of animals exported to Morocco. The way animals are treated at cattle markets and slaughterhouses does not meet the OIE standards: rough handling, unhygienic conditions and lack of adequate means of transport and facilities.

In addition, we know that for the smallholder it is difficult to provide the imported heifers with the type of housing and care that is required to let the animals express their genetic potential, leading to early culling. Proper guidance is required to ensure that the animals are properly cared for and that farmers will benefit.



Inadequate housing and hygiene hamper production and quality.

3.3 Sustainability of agricultural development

Sustainable growth is a concern that has been fully recognized and several studies have been conducted to address the existing barriers in water use, climate control, soil deterioration and the related social impacts of government measures to control these issues.

Political and strategic decisions, regulations and the stimulation of a sustainable development of agriculture are based on:

- ◆ Need for improvement of the efficient use of all resources;
- ◆ Conservation, protection and adding value of natural resources;
- ◆ Protection of the means for subsistence in rural area, improve the equality and social welfare;
- ◆ Increased sustainability of rural communities and ecosystems, and
- ◆ Efficient and responsible leadership to achieve these objectives.

A recent FAO report on improved durability underlines the above priorities and mentions the need for ¹⁴:

- ◆ Soil improvement and water use;
- ◆ Specific programmes for the different climatic zones, e.g. for the mountainous areas new production methods and grazing systems have to be developed, while alternative employment will be needed as well;
- ◆ Benchmarking;
- ◆ Identification of action programs and stakeholders;
- ◆ Use of lessons learnt.

It will be one of the great challenges for Morocco to balance agricultural development with environmental protection and social welfare for its large rural population.

3.4 Import regulations

[Access2Markets](#) is an essential Market Access Database (MADB) for companies that intend to export. Via this database the European Commission provides, free of charge, a huge amount of information on all aspects related to international trade.

To obtain specific information, one has to provide at “My Trade Assistant” the following information: i.e. the country of origin”, the country of destination and the product name or HS code of your product. You will then receive information on:

- ◆ *Tariffs*: information on import duties related to your product applicable to third countries;
- ◆ *Rules of origin (ROSA)*: information if reduced or zero import duties are applicable. By using the ROSA-Tool a checklist can be assessed if your product complies with the rule of origin;
- ◆ *Taxes*: information on the various import duties and levies applicable to the HS-code;
- ◆ *Trade flow statistics*: breakdown of trade between EU and non-EU countries;
- ◆ *Procedures and formalities*:
 - Overview: information on trade agreements, import regulations and product registration;
 - General: information on export documentation;
 - Specific: information on specific conditions and product requirement for the specific HS-Code;
 - Trade barriers: information on key trade barriers EU exporters can be confronted with

To make optimal use of this data-base the product code has to be in accordance with the harmonised system HS.

Import Duty Exemption

As part of agreements to be concluded with the government, businesses that commit to make an investment of one hundred (100) million dirhams or more can benefit from exemption from import duty and the value added tax applicable to goods, materials and tools needed for their project and import directly by the company or on their behalf.

This exemption is also granted to the parts, spare parts and accessories imported at the same time as capital goods, machinery and equipment for which they are intended. The investment must be made within thirty-six (36) months from the date of the signature of the abovementioned agreement.

¹⁴ FAO, 2017

Export

Prior to exporting goods to Morocco, the exporter has to ensure that the products comply with Moroccan conditions. This could cover more than product specifications, packaging and labelling. For details consult the underneath link:

www.rvo.nl/onderwerpen/internationaal-ondernemen/landenoverzicht/marokko/producteisen

Trade agreement between Morocco and the EU

In 2000, and updated in 2012, Morocco and the EU signed a trade agreement in which abolishment of import duties is agreed for industrial products as well as reduced import duties for some specific agricultural, agro- and fish-products. Details are documented in the Market Access Database.

Additional information is available at:

- ◆ Evofenedex: this site provides an overview of required certificates
- ◆ Morocco customs provides key information on what is needed to export to Morocco
- ◆ The website of the ' [Ministère de l'Industrie, du Commerce, de l'Investissement et de l'Economie Numérique](http://www.morocco.gov.ma/fr/Ministere-de-l-Industrie-du-Commerce-de-l-Investissement-et-de-l-Economie-Numérique)
- ◆ www.rvo.nl/onderwerpen/internationaal-ondernemen/landenoverzicht/marokko

3.5 Access to Finance

In an interview¹⁵ Mustapha Ben El Ahmar, Director of the Center for Studies and Research (CERCAM), and Mariem Dkhil, GCAM's Director of Sustainable Development Financing explained: *'Financing for Morocco's agriculture is structurally complex and needs to be adapted to a number of constraints, such as the diverse needs which have to be met (variety of crops and size of farms), the geographical fragmentation of farms nationwide, the difficulty of physically getting to farms, not to mention the economic and environmental risks (climate hazards, diseases, price volatility, etc.). These constraints are even greater when the farm is small and the farmer is often illiterate (as is the case for 28% of the population over 10 years of age in Morocco), or has a low level of education'*.

It was further explained that 20% of 1.5 million farms in Morocco fit in with the standards and services of traditional banks, 40% are very small farms for which micro-financing is more suitable, while the remaining 40% are medium-sized farms which do not fit in with

either a traditional banking approach, due to the lack of collateral, or a microfinance approach, given their needs. For this last group GCAM launched a new subsidiary for in 2010: *Tamwil el Fellah* (which means "Smallholder Financing"), for which the term *meso-credit* is used.

Small agricultural SMEs in generally benefit from agricultural loans averaging less than MAD 100,000 (EUR 9,300), with interest rates ranging between 5% and 5.5%. If there is no collateral, they are served by Tamwil El Fellah, with rates of between 8% and 8.5%.

Barriers in providing loans through GCAM can be summarized as:

- ◆ The **main difficulty** relates to agricultural land: 75% of it is privately owned, but the level of registration remains low. The majority of smallholdings are justified by traditional legal acts which have no value as a guarantee under Central Bank rules. Furthermore, 25% of them have obsolete legal statuses.
- ◆ The **second** difficulty stems from the agricultural insurance system. It has made considerable progress, but currently only covers 10% of cropland.
- ◆ The **third** difficulty relates to the size of smallholdings and the low level of cooperative groups or other groups, as well as the lack of connection between upstream farming and downstream commercial and industrial activities. On this point, the Green Morocco Plan (GMP), has made these two components major areas for operations and progress.
- ◆ The **fourth** difficulty is due to the advanced age of the heads of holdings and their low level of education. This limits actions for technical training, building capacities for management and transferring new technologies. This fact also raises the issue of succession.
- ◆ **Finally**, the environmental and climate constraint is increasingly being felt. The majority of Moroccan agriculture is rainfed, with only 15-20% of the usable agricultural area irrigated. Farmers will need to adapt quickly, as the changes caused by the climate are already visible. There is, in addition, the reduction in groundwater levels and its pollution, soil erosion and its salinization, and the loss of biodiversity.

¹⁵ Agricultural Credit in Morocco: "Meso-Credit, A High-Potential Innovation"

Large companies are in a much better position to find access to loans and government subsidies, as they are more familiar with conditions and support programs. In addition, they have the collateral to provide the necessary bank-security. For them the commercial banks are available and interest rates are negotiable.

In October 2019, King Mohammed VI of Morocco made a speech to mark the beginning of the new session of Parliament. In the yearly address which traditionally signals the general policy direction for the next 12 months, he called on banks and financial institutions to play “a greater role” in the country’s development. He specifically referred to “simplifying and facilitating access to loans.... and financing the creation of small and medium sized enterprises.”

In January 2020, Morocco released a plan that structures the country’s approach to SME financing. As part of this plan, interest rates on loans will be capped at 2% in urban areas, and 1.75% in rural areas, and an envelope of MAD 6 billion (US\$ 620 million) will be made available over three years. Existing SME loans will be refinanced at a preferential rate of 1.25%, 100 base points lower than the current benchmarking interest rate. This last was only the latest stage in a large, concerted push to put financing at the front of economic development efforts.

This approach is especially relevant in involving sectors of the population that would otherwise not have access to financial services. These segments include¹⁶ women, younger generations, and the rural population, which in Morocco stands at about 35% of the total and where socio-economic indicators are less performant. According to the Doing Business Index, banks, MFIs and other credit institutions in Morocco only have data on 31.6% of citizens, meaning the remaining share are unbanked or part of the “informal” sector. They are a particular target of financial inclusion programs.

In September 2020, the [European Investment Bank and Crédit Agricole du Maroc signed a financing agreement](#) of 200 million euros to support agricultural ecosystems, with a particular focus on sustainable development. This line of credit, whose primary objective is to support the implementation of Morocco’s new agricultural strategy *Generation Green 2020-2030*, covers the financing of agricultural value chains, including the entire ecosystem: production, storage, logistics, conditioning, packaging, processing, marketing. The line of credit is directed to all segments of food production: farms,

agricultural cooperatives, Economic Interest Groups, Small and Medium Enterprises, Very Small Enterprises.

It is clear that all relevant stakeholders are fully aware that without investments and easy access to loans the development of the agricultural sector will be severely hampered. It is still too early to assess if the measures that were taken have indeed led to an increase in loan disbursement for the SMEs. The road to obtain loans was difficult until recently, while the demand is still high.

Until recently GCAM offered various options to take a loan for investment purposes:

- ◆ For a ‘large’ (> 1 million MAD) project a business plan is needed, with the return on investment stated clearly. The value of the property used as collateral has to be assessed by an independent taxation specialist. If the value of the property is less than the required loan and the business plan is valid, a loan can be obtained against an interest rate that can be negotiated.
- ◆ For small investments up to 1.000.000 the deed of a land/house including a set of documents stating the purpose of the loan is sufficient for a smallholder to obtain a loan to buy agricultural machinery, livestock etc.

GCAM offers the possibility to repay the loans on monthly of annual basis with interest. An advance of up to 95% of a potential government grant can be provided if this grant has been approved. Loans of up to 80% of the potential government grant can be given when the loan period has a duration of 2 years. Interest rates of 5% and up where common, but should now be much lower as a result of the new government policy.

GCAMs funding doubled from 4 billion MAD to 8 billion MAD for the 2020-2021 agricultural campaign: funding for agricultural investments in equipment and the modernization of farms. This should offer opportunities for farmers and Dutch Companies.

The government subsidies provided as part of the support programs ‘Green Morocco’ and ‘Generation Green’ make it easier to invest in farm development, but thus far that was easier for the larger farms. With the emphasis on stimulating young people to become professional farmers, it may also become easier now for farmers in the rural areas with less land and animals. Although we must keep in mind that the current barriers of stagnating consumption and increased feed costs will make farmers very cautious to invest. This fluctuation in

¹⁶ Global Consultant, Creditinfo Group

good and bad years is well-known issue in Morocco, but difficult to overcome.

The subsidies, which are provided through the Agricultural Development Fund, were available until the end of 2020 for the following sectors related to cattle production (other sectors not listed here):

- ◆ Irrigation and Land Development
 - Localized irrigation projects and additional developments: 80% of cost subsidized with a ceiling of 36,000 Dh/ha;
 - Supplementary irrigation projects: operational costs 50%, with a ceiling of 20,000 Dh/ha;
 - Land improvement and rainwater collection: deep rock removal and rainwater storage (30% and 50% respectively with ceilings of 7,000 Dh and 2,500 Dh).

- ◆ Acquisition of Agricultural Equipment
 - Detailed list of farm machinery (tractors, with attachments, etc.). Subsidies vary from 30% to 60%, with ceilings from 1000 – 90,000 Dh/unit. Number of units is related to the area (no. of ha) or to the no. of units per tractor. Above 100 ha, the no. of units for which subsidy is available decreases.

- ◆ Acquisition of Breeding Equipment
 - Under this heading farm machines such as a simple grinder to a self-propelled harvester are mention, plus AI equipment. For all equipment 30% subsidy is provided, with specific ceilings related to the no. of animals. For cooperatives the ceilings are higher than for individual farms.

- ◆ Valorisation Units: this covers construction of:
 - Cheese and other dairy production units
 - Industrial slaughterhouses for red meat with cutting room
 - Red meat cutting units
 - Red meat processing units
 - Equipment for red meat processing units.

For the above investments 30% subsidy can be provided, with specific ceilings per item (e.g. 18,000,000 for an industrial unit).

- ◆ Export promotion for a range of specified dairy products is 500 Dh/ton.
- ◆ Aid to Aggregation projects: an aggregator, such as a dairy company, can also apply for similar subsidies for farm development or milk sourcing as mentioned above, but under slightly different conditions.

A detailed description is available in the report of April 2019¹⁷. The report also describes in detail what information will be required as part of the applications.

Meanwhile new subsidy guidelines may be available for 2021. It was understood that the subsidy on heifers has just been stopped, which already had a negative effect on imports. It is not yet clear what other changes will be implemented.

The subsidies are attractive, but cooperatives and farmers that wish to make use of these facilities also need to apply for the bank (so an advance on the subsidy can be paid) and quite a bit of paperwork. Here extension agents, processing companies and equipment suppliers may have to assist with all the applications.



¹⁷ Agricultural Development Fund: Financial State Aids to encourage agricultural investments, April 2019

4 Advisory- and Support Services

4.1 Animal Health and Disease Control

ONSSA (l'Office de Sécurité Sanitaire des Produits Alimentaires) is responsible for all aspects of plant, animal and food security. This includes certification of products, border control, disease surveillance and outbreak management, etc. A complete list of the ONSSA responsibilities has been attached as Annex 4.

The veterinary services also include self-employed and salaried veterinary practitioners in the private sector who work in the field. For farmers this group is most important in view of the daily health problems and for the provision of AI services. Morocco has a wide network of certified veterinarians and reportedly farmers are satisfied with their services.

Veterinary drugs and related needs for animal care and treatment are all available in the country. All large pharmaceutical companies are present, including the Dutch MSD Animal Health (Intervet) and Dopharma.

4.2 Extension Services

Extension services in Morocco have a long history, starting from 1957 when the first ploughing demonstrations were given. World bank support further stimulated the development of extension services and in 2010 the Teaching, Research and Development Directorate, which later became the Research, Training and Education Directorate (DEFER), was established. Presently, Morocco has decentralized extension services.

Some of the constraints in the extension system, already identified in a Morocco Country Paper in 2010 and in the Green Plan the focus for agricultural research and extension was shifted from supply-driven to demand-driven approach.

With the creation of the National Office of the Agricultural Council (ONCA) in 2013 and the law on the reorganisation of the agricultural consultancy service in 2015, basic conditions for the development of the sector were established, aiming in particular to increase the contribution of the private sector service providers to agricultural advice and training. It is within this framework that the Moroccan government has made available significant subsidies for modernisation and expansion investments targeting farms.

The German-Moroccan Excellence Centre for Agriculture in Casablanca (CECAMA), which started in 2013 as a public-private partnership project, is a facility where agricultural producers, farmers and their organizations, extension staff and other partners in the agricultural value chain are able to obtain information on modern agricultural technology and cultivation methods. Fimalait was responsible on behalf of Morocco for the training programs, but this too may have changed in 2020.

There are several governmental organisations involved in extension, such as the Direction of Education, Research and Development (DERD) and the National Centre of Studies and Research in Extension (CNERV), which is located at the National School of Agriculture of Meknès. In addition, there are the local offices of the Directorate for Animal Production (DPA) and the Centres for Agricultural Development (CDA). Most of the extension services are limited in their on-farm activities and mainly provide support with subsidy requests.

The private sector, including processing companies, suppliers of feed and seeds and consultancy companies, organise presentations at cooperative level or train farmers on milk quality issues. When donor funding is available more support can be provided, but often for a limited period of time.

Extension services do need further strengthening. The link between research, training and development is not working well, while the local offices lack funding and staff and are burdened with administrative functions.

4.3 Research and education

Morocco has more than four dozen universities, institutes of higher learning, and polytechnics dispersed at urban centres throughout the country. Its leading institutions include Muhammad V University in Rabat, the country's largest university, with branches in Casablanca and Fès; the Hassan II Agriculture and Veterinary Institute in Rabat, which conducts leading social-science research in addition to its agricultural specialties; and Al-Akhawayn University in lfrane, a public English-language university inaugurated in 1995 with contributions from Saudi Arabia and the United States.

Nineteen agencies perform agricultural R&D in Morocco. INRA) is the country's largest agricultural R&D agency. In addition to its headquarters in Rabat, INRA operates ten regional research centres and 23 experimental stations covering various agro-ecosystems. INRA's scientists conduct research on crops (mainly wheat), fruit trees (date palm and citrus), olives, livestock, pastures and forages, and natural resources.

Fourteen higher education agencies are actively engaged in agricultural R&D, together constituting roughly a quarter of Morocco's FTE agricultural researchers. The country's largest higher education agency involved in agricultural research is IAV-Hassan II. In addition to its primary campus in Rabat, IAV-Hassan II operates a satellite campus in Agadir, which specializes in horticulture and plant breeding. Moreover, an experiment farm at Aït Melloul supports IAV-Hassan II's applied research activities on crops, livestock, and natural resources.

ENAM conducts research largely focusing on crops, livestock, and socioeconomic issues, while ENFI conducts research on forestry, natural resources, and mountain economies.

The faculties of science at the universities of Agadir, Beni-Mellal, Casablanca, Errachidia, Fès, Kénitra, Marrakech, Meknès, Oujda, and Settat are all involved in (limited) agricultural R&D as well.

Much research has been undertaken at the experimental stations in Morocco and a wealth on data had been accumulated. However, it is its transfer to

farmers that is the lacking link in the chain. This is partly due to the weakness of the extension system, but also to the adaptation to the context of the smallholder animal farming systems and lack of feedback from the farming community.

In urban areas the majority of children attend school, but in rural areas attendance is much lower, certainly for women. Poor school attendance meant a low rate of literacy. In translating research results into understandable messages for the rural areas this has to be kept in mind.

4.4 Cooperative development

Morocco had around 14,000 registered agricultural cooperatives in 2015¹⁸. Their size (both in members and capital) and number vary largely across subsectors within agriculture. The level of maturity of cooperatives and the services they provide in each subsector also vary substantially. Cooperatives play an important role in the milk and fruit & vegetables subsectors. The study prepared by L. Pereira and N. Santos for the FAO/EBRD gives a very clear description on the development of cooperatives and the challenges that they are facing. Management and finance are mentioned as two major constraints, for which training and support are needed.

In the dairy sector there are almost as many cooperatives as milk collection centres, around 2,700, as these are most of the time owned or operated by a cooperative. The dairy coops have their own specific challenges to address:

- ◆ Obtain and sell high quality raw milk in order to obtain a more attractive price from the processing industry, which will allow the coop to pay a better price to the suppliers, and
- ◆ Successfully compete with the informal traders, who are less demanding and who collect the milk at the door of the farm,

In general, biological raw milk quality is low due to poor hygiene and residues of antibiotics in the milk. On-farm investments and better handling practices are needed to improve milk quality. As payments to farmers are based on volumes delivered rather than on the quality of milk, farmers lack incentives to improve milk quality.

¹⁸ L. D. Pereira & N. Santos, FAO, , 2018

Dairy farmers can switch easily between buyers, and are free to sell to informal traders or other cooperatives that collect milk in the area when these pay a better price or apply lower quality standards. Especially close to the large cities, there are multiple private traders who collect milk from the farms and deliver it to the cooperatives. These traders mix the milk collected from several farms, making it difficult to avoid contamination and to trace the origin in case of a quality issue.

Several potential solutions have been discussed and implemented by the more successful cooperatives:

- ◆ A regular and reliable payment system for the milk is a way to build stronger relations with suppliers, but apparently there are gaps between the time farmers are to be paid and money is to be received by the coops for milk deliveries.

Some coops have tried to bridge this gap with bank overdrafts, but these are quite costly. As the dairy business is highly seasonal, income from milk may sometimes be lower than the overhead costs (e.g. salaries, electricity, transport and procurement of material) which makes the situation even more difficult. This situation applies more often to the non-irrigated areas where severe fodder shortages occur.

- ◆ Strengthening the relation between members and coop by the provision of services. The most common approach is the sale of compound feed or feed ingredients and provisions of veterinary services. Some cooperatives also developed social services to their members or the whole community. Examples are an ambulance to transport villagers in need of getting urgent medical care, building a school or a room for medical assistance. Medical insurance was also mentioned, but this failed as the insurance company tripled the premium.
- ◆ Adding value to the raw milk by installing processing equipment for dairy products such as yoghurt, pasteurized milk or (mozzarella) cheese. This option not only requires substantial investments and the technical skills to make a tasty and healthy product, but also requires the management capacity to develop a reliable market for the own products.

Individual testing and payment according to quality would be the best solution, but this requires investments in reliable testing equipment for which there often is no budget. Support from the dairy companies could be an option as there is a mutual benefit.

The development of cooperatives also depends on the country's institutional framework and interinstitutional coordination. In Morocco, there are four ministries setting policies that directly influence the environment (land access, trade regulations, cooperative laws and agricultural policy) in which cooperatives develop. With regard to support services, the Ministry of Agriculture and Maritime Fisheries, Rural Development, Water and Forests (MAPM) contains about ten agencies and divisions tasked with supplying technical support for rural stakeholders, including cooperatives. The Office for the Development of Cooperation (ODCO) and a number of non-governmental organizations (NGOs), development agencies and banks also provide technical assistance to cooperatives.

There is therefore an opportunity to streamline the institutional setting and to improve coordination among those responsible for policy design and for enabling the development of technical and financial support services to cooperatives in Morocco.

The Green Morocco Plan (GMP) very much promoted the concept of "aggregation" to overcome the constraints related to the fragmentation of agricultural production structures. Institutions of different kinds are contemplated in the GMP to improve access to know-how, finance and markets, but farmers still feel a lack of support from the institutional environment and notably of the current state policies for smallholders and their cooperatives. Support measures to smallholder farmer organizations allocated by the GMP through FIMALAIT reportedly were late or not enough.



Example of a small processing unit

5 Investment Opportunities

5.1 S.W.O.T. Analysis

In order to identify opportunities for Dutch companies to do business in the dairy sector in Morocco a SWOT analysis was carried out. Challenges and opportunities are described on the next pages.

<p style="text-align: center;">Strength</p> <ul style="list-style-type: none"> • Well-developed processing industry; • Dairy sector development strongly stimulated by government; • Self-sufficiency for > 90% in dairy and beef consumption; • Well-developed network of milk collection centres (> 2,700); • Dairy cooperatives play active role in milk collection and herd development; • Cattle population of 1.8 million cows, of which 70% improved breeds; • Good infrastructure and close relations between processing companies and suppliers; • Good network of input suppliers (equipment, veterinary drugs, compound feed, etc.); • Research and education systems at high level. 	<p style="text-align: center;">Weakness</p> <ul style="list-style-type: none"> • Predominance of small farms (90% with < 10 cows) and traditional farming; • Limited access to credits and loans as farmers lack collateral; • Limited water resources and strong dependence on rainfall for crop production • Management skills of smallholders not sufficient to achieve potential yields of improved cows; • Extension services are not enough developed to meet the needs of the farmers: • Seasonal variation in milk production leads to overproduction and shortages of raw milk • Milk quality and composition below standards, as payment is based on tank quality of the MCC • Informal traders provide escape route for lower quality milk.
<p style="text-align: center;">Opportunity</p> <ul style="list-style-type: none"> • General awareness that efficiency in dairy production has to improve to be competitive: more training and advice needed; • Growing population and economic growth increase the demand for dairy products and beef; • Export potential in North African countries for regional products can be developed further; • Emerging generation of (semi) professional farms that are large enough to specialise; • Digital tools in farming and education 	<p style="text-align: center;">Threat</p> <ul style="list-style-type: none"> • Continued drought further disrupts development of dairy and beef production; • Access to loans and credit remains difficult for farmers that wish to expand their farms; • Informal trade in (raw) milk hampers efforts to improve milk quality; • Bureaucracy in Morocco can complicate trade and increase risks; • Delayed payment is common in Morocco and exporters will have to arrange with their dealers/agents how to deal with this problem; • Strong competition from other suppliers.

5.2 Challenges in the dairy sector

Even though much progress has already been made, there still are some serious challenges that hamper development.

- ◆ Milk production per cow/year averages well below their genetic potential as many smallholders are not capable to manage their cows according to their requirements.
- ◆ Milk quality needs to be improved and this requires a payment system that rewards quality at farm level.

More milk per cow will require (1) training and guidance of farms, (2) stimulating further specialisation of dairy farming and (3) increasing the scale of farming to a level that allows specialisation and provides an attractive income, (4) make it possible for farmers to invest in farm improvement and expansion.

The government is aware of the lack of investment in farm development and already instructed banks to lower interest rates and make it easier to obtain loans. Collateral remains difficult, as land ownership is not always properly registered.

Water resources are limited and it is a major challenge to increase the irrigated areas, while ensuring that groundwater levels are safeguarded. The regular seasons of drought show the vulnerability of agricultural production. A sustainable production system will require careful planning and implementation.

The processing industry needs are regular supply of good quality milk. The seasonality in milk production is a serious constraint and one option is the use of milk powder, the other is a more even level of milk production throughout the year. Hot summers and dependence on rainfed crops make it difficult to avoid a drop of milk production, so the government supports the establishment of milk powder plants.

Market development is directed towards (1) increased local consumption of milk and dairy products and (2) export of dairy products to surrounding countries in North Africa. In both cases there is a need for value-added products of high quality. Presently most of these products are imported, mainly from Europe.

All challenges can be considered areas of opportunity: changes are needed, investments will be made and expertise and products will be required.

For Dutch suppliers the market in Morocco is not the easiest, as there is not only a language barrier but also payment conditions are more complicated. Dealers need more time to get paid by their clients and expect from their suppliers also more lenience in payment conditions. This poses a risk that can only be reduced if there is mutual trust and enough trade to keep both parties interested and actively involved. Since German and French companies manage to deal with the Moroccan conditions of doing business, there should be no reason why the Dutch could not do the same.

5.3 Opportunities in animal production

5.3.1 Equipment and farm machinery

In principle all products are available or can be obtained in Morocco. There are a number of dealers, such as UP, Prodela and Agridev, that represent various European companies and brands. They know their business and Dutch companies like Lely, Trioliet, CRV, JOZ, Mueller, MS Schippers, Agriprom, etc.

For barn equipment and farm machinery the potential market for Dutch suppliers is mainly with the large(r) farms that look for high quality and have the financial capability to invest (and know how to make use of available subsidies).

Smallholders have little money to invest and are 'price buyers': they will opt for Turkish, Chinese or Indian products that are less in quality, but (substantially) cheaper than Dutch products unless the quality of services and support prove to be more valuable than the lowest price.

Investments in farm development will continue. The government support to create more 'professional' farms (Generation Green) is not only meant for large farms, but especially to stimulate farmers to specialise and invest in modern and well managed dairy farms.

5.3.2 Animal nutrition

In Section 2 we mentioned that animal nutrition is one of the main reasons for low milk yields, especially where it concerns cows with a high genetic potential. Several factors play an important role:

- ◆ The lack of knowledge among farmers in calculating rations that meet the requirements of a cow at a specific time during the lactation and dry period;
- ◆ The quality and availability of fresh and conserved fodder crops;
- ◆ The use and quality of compound feeds and by-products from the food industry.

Management skills

For many smallholders the change from local or crossbreed cows to purebred animals has been too fast and they miss the training, guidance and experience to manage these cows as they should. They also lack the finance to create better conditions for housing and animal welfare, or even to provide the quantities and qualities of feed that are necessary. In addition, there are the difficulties in reproduction and animal health that occur as part of their limited management skills. Extension services and guidance from (feed) suppliers are of great importance to support these farmers.

On large farms the management skills are much less of a constraint, as qualified staff can be employed. Vets and farm managers have access to up-to date technical information and have more guidance from specialists and input suppliers.

Fodder production and conservation

The climatic conditions largely determine the yields and quality of the fodder crops and this has a direct effect on the need for concentrates, either as specific ingredient as in the form of a compound feed.

The most important fodder crops used in Morocco are barley and oats in rainfed areas and alfalfa, berseem and corn under irrigation. Sugar beets are interesting for the beet pulp. The total areas under cultivation in 2018 were ± 280,000 ha rainfed and ± 260,000 ha under irrigation. In relation to the cattle population of 3.5 million head or at least >2 million livestock units (LUs) that would be 4 LU/ha. For 2019 and 2020 the production will be much lower as a result of the drought. The distribution over the various regions in Morocco is shown in Tables 5.1 and 5.2.

Table 5.1: Rainfed fodder crop production per region (2018)

Map ref.	REGION	Green Oats		Barley forage	
		Rainfed		Rainfed	
		Ha	MT	Ha	MT
5	Béni Mella-Khénifra	16,750	77,950	5,380	61,300
8	Drâa-Tafilalet	-	-	-	-
12	Eddakhla-Oued Eddahab	-	-	-	-
3	Fés-Meknés	19,870	217,090	30,036	283,463
6	Grand Casablanca-Settat	22,520	151,000	27,886	270,931
10	Guelmim-Oued Noun	-	-	-	-
11	Laayoune-Sakia El Hamra	-	-	-	-
7	Marrakech-Safi	-	-	22,712	215,510
2	Oriental	4,115	18,800	225	1,600
4	Rabat-Salé-Kénitra	17,890	259,040	14,500	430,230
9	Souss-Massa	-	-	-	-
1	Tanger-Tétouan-Al Hoceima	8,755	197,030	9,450	186,679
	Grand total	89,900	920,910	110,189	1,449,713

Table 5.2: Irrigated fodder crop production per region (2018)

Map ref.	REGION	Bersim		Alfalfa		Corn forage	
		Irrigated		Irrigated		Irrigated	
		Ha	MT	Ha	MT	Ha	MT
5	Béni Mella-Khénifra	2,290	87,150	-	-	6,080	324,960
8	Drâa-Tafilalet	-	-	14,342	756,060	-	-
12	Eddakhla-Oued Eddahab	-	-	-	-	-	-
3	Fés-Meknés	1,220	31,440	7,315	103,700	1,965	74,140
6	Grand Casablanca-Settat	13,761	671,175	14,876	761,886	7,929	398,637
10	Guelmim-Oued Noun	-	-	1,285	73,465	60	3,600
11	Laayoune-Sakia El Hamra	-	-	-	-	-	-
7	Marrakech-Safi	5,255	205,475	24,181	1,557,153	1,124	63,350
2	Oriental	230	9,520	13,105	605,998	283	8,860
4	Rabat-Salé-Kénitra	31,890	1,884,371	595	60,810	11,241	506,404
9	Souss-Massa	-	-	10,279	589,895	20,509	636,235
1	Tanger-Tétouan-Al Hoceima	1,745	111,503	230	4,250	2,410	140,655
	Grand total	56,391	3,000,634	86,208	4,513,217	51,601	2,156,841



Source: Government statistics

The various reports on animal nutrition all mention lower feeding values as a result of losses due to crop management (use of fertilizers, harvesting time) during fodder conservation (hay making and/or silage) which increases the dependence on concentrates. The mentioned yields in Table 5.3 are all total product in a year with good harvests.

Table 5.3: Forage crop production and yields/ha, season 2018

Crops	Rainfed		Irrigated	
	Area Ha	Yield MT/ha	Area Ha	Yield MT/ha
Barley forage	110,189	13.2	13,330	26.5
Green oats	89,900	10.2	1,408	24.2
Alfalfa	23,331	13.1	86,208	52.4
Bersim	12,202	32.9	56,391	53.2
Corn forage	1,558	29.0	51,601	41.8
Sugar beet	67	38.1	53,893	68.8
Faba bean	24,720	1.1	110	1.6
Melange forage	14,684	6.9	300	11.9
Oat vetch	7,700	17.5	5,195	44.0

Source: Government statistics

Grain production is not only important for human consumption, but also for animal feeds. Barley is one of the main livestock feeds in Morocco. Most of the agricultural regions in Morocco suffered from a dry winter season in 2018/2019 and again in 2019/2020. The lack of rain impacted farmers' ability to grow fodder for their livestock, pushing them to purchase imported grains at high prices. As a drought relief measure, the government of Morocco has announced a "Safeguard of Livestock Program." Morocco's grain office (ONICL) will distribute 250,000 MT of subsidized barley to farmers in the regions affected by drought. Farmers will be able to purchase the subsidized barley for a fixed price of two Dh/kg, while the government will cover the difference with the market price. The National Interprofessional Office for Cereals and Legumes (ONICL), the National Office for Agricultural Council (ONCA), and the National Food Safety Office (ONSSA) are partnering up with the Moroccan government for the project.

Table 5.4: Wheat and barley: area and production, 2018

Map ref.	REGION	DURUM WHEAT		SOFT WHEAT		BARLEY	
		Rainfed		Rainfed		Rainfed	
		Ha	MT	Ha	MT	Ha	MT
5	Béni Mellal-Khénifra	101,040	213,370	178,290	344,221	203,610	426,499
8	Drâa-Tafilalet	13,740	18,377	8,600	12,530	260	156
12	Eddakhla-Oued Eddahab	-	-	-	-	-	-
3	Fés-Meknés	204,270	519,444	327,910	929,157	217,700	457,764
6	Grand Casablanca-Settat	203,410	644,199	327,470	1,149,049	260,010	745,265
10	Guelmim-Oued Noun	700	217	8,740	4,532	12,700	4,980
11	Laayoune-Sakia El Hamra	-	-	-	-	-	-
7	Marrakech-Safi	204,650	309,661	289,100	428,054	405,760	593,223
2	Oriental	34,280	36,884	84,690	97,236	130,850	126,220
4	Rabat-Salé-Kénitra	35,850	110,722	297,620	869,893	92,310	174,013
9	Souss-Massa	3,410	4,087	40,610	60,368	100,520	60,529
1	Tanger-Tétouan-Al Hoceima	107,670	235,868	132,250	294,947	119,880	228,121
	Grand total	909,020	2,092,828	1,695,280	4,189,986	1,543,600	2,816,770

Table 5.5: Area and Production, Period 2016-2020

		2016	2017	2018	2019	2020 *
Area	Wheat, total	2,413	3,321	2,850	2,506	2,700
	- Durum	837	1,073	984	819	850
	- Soft	1,575	2,248	1,866	1,687	1,850
	Barley	1,208	1,893	1,597	1,050	1,100
	Total	3,621	5,121	4,350	3,556	3,800
Production	Wheat, total	2,731	7,092	7,340	4,025	2,870
	- Durum	874	2,199	2,430	1,344	820
	- Soft	1,856	4,892	4,910	2,681	2,050
	Barley	620	2,467	2,910	1,161	950
	Total	3,351	9,559	10,250	5,200	3,820

Source: GAIN report/Ministry of Agriculture: *FAS/Rabat

The harvest of 2017/2018 was the best of the past 5 years and we see a dramatic reduction in the past two years as most grains are depending on rainfall. The variation between the regions is visible in tables 3.5 and 3.6. Of a total area of 4.8 million ha, 4.5 million was rainfed and only 338,878 ha or 7% was under irrigation. 89% of the yield came from rainfed cultivation, which emphasizes the effects of the weather conditions. If we compare the yields per ha for the different regions it is also clear where the crops could benefit from rainfall and which are the dryer areas.

Table 5.6: Wheat and barley, Yield/ha, 2018

REGION	Durum wheat		Soft wheat		Barley	
	Rainfed	Irrigated	Rainfed	Irrigated	Rainfed	Irrigated
	MT/ha	MT/ha	MT/ha	MT/ha	MT/ha	MT/ha
Béni Mellal-Khénifra	2.1	5.1	1.9	5.3	2.1	2.1
Drâa-Tafilalet	1.3	2.1	1.5	2.0	0.6	1.4
Eddakhla-Oued Eddahab	-	-	-	-	-	-
Fés-Meknés	2.5	2.1	2.8	2.7	2.1	2.4
Grand Casablanca-Settat	3.2	5.4	3.5	5.4	2.9	4.0
Guelmim-Oued Noun	0.3	-	0.5	-	0.4	-
Laayoune-Sakia El Hamra	-	-	-	-	-	-
Marrakech-Safi	1.5	3.3	1.5	3.3	1.5	2.6
Oriental	1.1	2.9	1.1	2.8	1.0	2.5
Rabat-Salé-Kénitra	3.1	3.2	2.9	3.5	1.9	2.7
Souss-Massa	1.2	2.2	1.5	2.1	0.6	1.4
Tanger-Tétouan-Al Hoceima	2.2	3.2	2.2	3.2	1.9	2.2
Average	1.9	3.3	2.0	3.4	1.5	2.4

Source: Government statistics

Morocco's grain imports increased significantly after 2018/2019 to meet domestic consumption. In response to low production, the Moroccan government decided to extend its suspension of customs duties on common wheat through December 31, 2020.

Table 5.4: Wheat and barley: area and production, 2018



Source: Government statistics

Compound feed:

There are 40 companies in Morocco for the production of compound feeds. For most of them poultry feed is their main product, with cattle feed at the second place. In 2019 the total production was 3.7 million tons for poultry and 1 million tons for ruminants, with a total production estimated at about 5 million tons.

A significant number of egg-laying and large breeding farms have their own feed manufacturing units and together process nearly 600,000 tons/year (on-farm manufacturing).

Well-known brands on the Moroccan market are:

- ◆ Alf Maghreb: chicken & dairy, additives and pre-mixes: controls 18% of the market
- ◆ Alf Sahel: chicken & dairy
- ◆ INAAM: dairy, chicken, horses, cats and dogs
- ◆ AKSAM: dairy and sheep
- ◆ Sofalim: chicken and dairy.

A list of feed producers has been attached as Annex 3.

The price per kg of livestock concentrate not only depends on its composition (energy value, protein content, specific additives), but also varies according to the world market prices of grains and soybean as many of the feed ingredients have to be imported. Table 5.7 gives feed prices from the major suppliers.

Table 5.7: Compound feed prices (Dh, 2018 – 2021)

Year	Product	Alf Sahel	AKSAM	INAAM	ALF Maghreb	Sofalim	
2018	MC 17% MAT	3.05	3.10	3.05	3.05	0.00	
	Calves	3.05	3.75	3.05	3.05		
	Fattening	2.85	3.45	2.80	2.90		
2019	MC 17% MAT	3.05	3.10	3.05	3.10		
	MC 20% MAT	0.00	3.30	0.00	3.40		
	Calves	3.05	3.75	3.05	3.10		
2020	Fattening	2.85	3.45	2.80	3.20		
	Milking Cow	3.07	3.10	3.05	3.10		3.05
	MC 20% MAT	0.00	3.30	3.40	3.40		3.20
	Calves	3.07	3.75	3.05	3.10		3.05
	Heifer	0.00	2.90	0.00	0.00	0.00	
2021	Fattening	2.90	3.45	2.80	3.20	3.00	
	Milking Cow	3.37	3.40	3.35	3.40	3.35	
	MC 20% MAT	0.00	3.60	3.70	3.70	3.50	
	Calves	3.37	4.05	3.35	3.40	3.35	
	Heifer	0.00	3.20	0.00	0.00	0.00	
	Fattening	3.20	3.75	3.10	3.50	3.30	

Source: FG Africa

For a commercial feed with 17% crude protein and 1 UFL (\pm 1000 VEM) the price was 3.05 to 3.10 Dh/kg until August 2020, but increased to 3.35 to 3.40 Dh/kg as a result of high demand and rising costs. Forecasts show a further increase in the prices for feed and feed ingredients.

Milk replacer:

The estimated sales volume of milk replacer is 2,000 tons/year. Half this quantity is produced in the region of Agadir and dominated by the company Vitalac, from France. Other brands, mainly serving the large farms are Cremo Elevage (with Prodela company as its agent), Celtilait (through Timac Agro) and "Serval" (through Novena). From the Netherlands Joosten and Schils have been active in Morocco for many years already.



Preparing milk replacer

Although the competition will be high on the market for compound feed, there is always room for business: a strong local partner and added value from Dutch side in technology and approach may be a strong combination. There is need for advice on effective use of concentrates. Both farmers and supplier will benefit from good services.



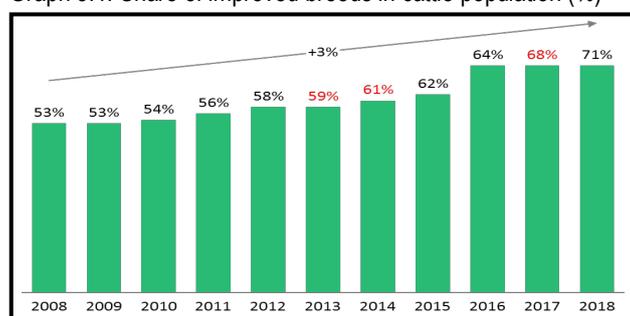
Feed and feed ingredients at a local market

5.3.3 Genetic improvement

Genetic improvement of the cattle population is one of the pillars in the government program to boost milk and beef production. This is done by importing purebred heifers and through promotion and expansion of artificial insemination.

The efforts to upgrade local breeds can be summarized by the change in proportion of these local breeds within the total Moroccan cattle population. The report by A. Nozzarine concluded a decrease in local breeds from 95% in 1975 to 40% in 2019¹⁹. Official government statistics even mention higher figures for improved cattle, which would mean that presently the local breeds are less than 30% of the cattle population.

Graph 5.1: Share of improved breeds in cattle population (%)



Source: Government statistics

In 2008 crossbred cows produced 1,250 l/cow/year, while the purebred averaged 3,500 l/cow/year. As this was clearly not enough, efforts were made to increase the production per cow/year to 3,000 and 5,000 litres respectively. In 2018 the actual performance was 2300 and 4200 according official statistics. Still below the genetic potential of the cows, as management and genetic potential should be at the same level to achieve the best results.

Cattle imports in Morocco

To build up an own breeding population of cattle, Morocco has been importing live animals since decades. Germany and France are by far the two major exporting EU countries followed by the Netherlands, Austria or Spain. According to Eurostat, 57,276 heifers and cows for breeding purposes were exported from the EU to Morocco in the last five years, with 10,493 female 'breeding' cattle alone in 2019. According to TrendEconomy the number is even larger, as shown in Table 5.8.

The main importers of pregnant heifers are:

- ◆ Agrigene for Centrale Danone
- ◆ Copag for its members
- ◆ Agroplus, part of Group Bel
- ◆ Aouda/ Masterrind (German subsidiary)
- ◆ El Bazz (Montbeliard from Coopex, France)
- ◆ Bovansmaroc (heifers and fattening bulls)
- ◆ Ali Hazdo (partner of Stegerman)
- ◆ Omada (Prim Holstein from France)

Imports have dropped after the government subsidy on heifers stopped in 2020 and Danone, as major importer, is also less active. The feed shortages and resulting constraints in the dairy further add to the reduced imports.

Table 5.8: Import of cattle in Morocco, period 2015 - 2019

Commodity	Unit	2015	2016	2017	2018	2019
Bovine animals other than pure-bred breeding animals	Total weight	1268	938	2258	4734	9388
	Total value	4081	3019	7200	16707	30069
	Total head	4008	3295	7499	15779	31293
	Weight/head (*)	316	284	301	300	300
	Price/head (*)	1018	916	960	1059	961
Bovine animals: pure bred breeding animals	Total weight	2157	7499	10535	10373	6953
	Total value	8860	30144	43597	44783	28578
	Total head	3844	14600	23804	20745	13905
	Weight/head (*)	561	513	442	500	500
	Price/head (*)	2305	2065	1832	2159	2055

Source: TrendEconomy (*) calculated

Bovine animals other than pure-bred as those animals imported for slaughter or further fattening. The pure-bred animals are meant for milk production.

The role of the Netherlands has been quite small in recent years for several reasons:

- ◆ Morocco's technical requirements for imported heifers from the Netherlands are more demanding than for Germany or France, which makes the Dutch heifers more expensive;
- ◆ As a result of the phosphate regulations of 2018, Dutch farmers keep less young stock, leading to a smaller supply of pregnant heifers;
- ◆ Moroccan farmers prefer larger animals that are at least 4 months pregnant. This type of heifer is easier to find in Germany than the Netherlands, where heifers are more dairy type;
- ◆ Dutch exporters have alternatives, e.g. Russia, where conditions are easier, payments are faster and risks are less.

¹⁹ A. Norezzine et al., 2020:

Note:

In 2019/2020 a total of 9,921 heifers was exported from the Netherlands outside the EU, approximately half the number of 2018/2019 (20,100 heads) and just 20% of the best export years. There are 2 additional causes, besides the shortage of heifers for this strong reduction in total exports:

- ◆ Corona: there are not enough vets to prepare export certificates and the selection of heifers by customers is impossible due to travel restrictions;
- ◆ Dutch (temporary) prohibition to use resting places in Russia and Kazakhstan as these do not meet EU standards or sometimes did not even exist.

Although the Moroccan government is still giving high priority to genetic improvement and heifer imports will continue, it is not likely that Dutch exporters will benefit from this market if conditions do not improve. Discussions to adjust the import regulations for Dutch heifers have not yet made any progress and the present situation makes it even more difficult to increase heifer export. Nevertheless, the market for heifers is substantial and offers opportunities for the coming years.

Morocco has also shown interest in the import of beef breeds, such as the Belgian Blue, and this might also provide an opportunity to do business for Dutch exporters.

Bovine semen and AI services

The AI Regional Centre (CRIA) in Fouarat (Kénitra) **was** the main Centre for the production and distribution of frozen semen to the sub-centers, provision of AI equipment and liquid nitrogen, technical information and the training of technicians. However, we were informed that the production of semen at CRIA and at Ain Jamaa, the 2nd location for semen production, stopped completely. FIMALAIT is expected to take over production of CRIA, but it is not clear when this will happen. Ain Jamaa, located near Casablanca, will be managed by the ANEB.

That means that at present a bovine semen has to be imported. Import data only refer to the total value of imports, which is around 2 million US\$/year. An increase of almost 100% compared to 2014. If the own production will not be revived, imports can be expected to rise further.

The main importers are:

Name	Office location
◆ Promoneg	Casablanca
◆ BBG	Sidi Bennour
◆ Tarmast	Casablanca
◆ Agroplus	Casablanca
◆ Aouda/Masterrind	Casablanca
◆ Ebmaroc	Mohmedia
◆ Agrigene	Fes
◆ Douiet	Casablanca
◆ Central Danone	Casablanca
◆ ANEB	Rabat
◆ Firma Pro for COPAG	Temara

Importers are reluctant to share any information on quantities of semen imported and used. Most semen comes from France, with Canada, U.S.A and Belgium following at a distance. Through the official circuit of ANEB and MAROC LAIT (or FIMALAIT) some 3.3 million inseminations were carried out between 2008 and 2018, averaging 300,000 inseminations per year or 10% of the breeding herd. A much larger number of inseminations is carried out by on-site self-inseminations of farms, the informal insemination sector and through veterinarians working in close relation with the processing industry. The total estimate of cows served by artificial inseminations is around 50-65% of the population. The remaining cows are served by local bulls.

A GAIN report²⁰ on the import of bovine semen mentions that industry professionals state that 'Morocco's technical requirements for imported semen unfairly disadvantage imported bovine semen and specifically the United States. In particular, industry has identified that (1) imported semen technical requirements are more rigorous than imported live cattle and domestic semen requirements, (2) a multiple top-100 requirement for dairy disadvantages the United States vis-à-vis countries with smaller cattle populations, and (3) conformity standards unjustifiably restrict the technical process of sorted semen'. Although this report was from 2018, it now seems that the protection of local semen is no longer necessary.

²⁰ Gain Report, 2018

A CRV representative, involved on behalf of the Dutch exporters, mentioned that the certificate for the Netherlands is less attractive than for e.g. France and Germany, but that this does not play a serious role in the marketing. A larger challenge is that for smallholders the price of semen is more important than the quality. For Dutch exporters of semen, the potential market is focused on those farms that are willing to pay for quality: the professional dairy farms. Even then this is a market that deserves attention as it will grow.

5.3.4 Animal health care

The market for veterinary medicines, equipment and consumables is well developed. One of the main suppliers is 'Pharmavet Maroc', established in 2011 when it still was 'Intervet Maroc'. At that time the Dutch company Intervet had already been taken over by MSD Animal Health.

Pharmavet works closely with all respected pharmaceutical companies and MSD AH still has close ties with this company. In addition, Pharmavet supplies locally produced drugs and has links with the market in North Africa. The Dutch presence in this part of the dairy chain is well taken care off, even though the mother company is American.

5.3.5 Irrigation and water management

In water-scarce Morocco, irrigation plays a fundamental economic and social role, contributing to agricultural productivity and rural population's income. While irrigation is practiced on only 16% of the cultivated land in the kingdom, it generates half of the agricultural Gross Domestic Product (GDP) and 75% of agricultural exports. However, water scarcity, accentuated by climate change, represents a growing challenge for farmers²¹.

To promote a more sustainable irrigation model, the government of Morocco has developed a national plan to optimize water use and increase productivity in irrigated agriculture (*Plan National d'Economie d'Eau d'Irrigation*, PNEEI), which has been supported by the World Bank since 2010.

Oum Er Rbia, the country's second largest river originating from the Millennium Atlas Mountains, supplies water to half of Morocco's large-scale irrigated areas. It passes through the Doukkala region in west central Morocco, a region known for its fertile plains. Water is diverted from the river and distributed through canals and pipes, that the PNEEI intends to modernize to provide better water services to farmers. Upgraded water distribution networks are able to deliver water 24/7 (rather than every couple of weeks) and individually (rather than collectively).

The improved water service allows farmers to adopt more efficient irrigation technologies, mainly drip irrigation, which is sponsored by the government of Morocco through an incentive program. An effort welcomed by farmers, who have a keen interest in more reliable access to water, which is key to achieving greater productivity, and thus increased income.

As irrigation is a necessity for most crops, the Ministry of Agriculture and Maritime Fisheries (MAMF) continues to develop new irrigation schemes, such as the Saïss Agricultural Plain, located between Meknes and Fes. The Project is principally intended to reduce agricultural irrigation abstraction of groundwater from the Saïss basin, which is presently unsustainable.

The King recently launched the construction works of the irrigation network at [Agadir's seawater desalination station](#). The construction of the station is currently 65% complete. The facility is part of the 2020-2027 national water program, launched in January. The program aims to consolidate and diversify the sources of drinking water supply, guarantee water security, and combat the effects of climate change. Covering an area of 20 hectares, the station aims to meet the drinking water needs of the Agadir region and the irrigation water needs of the Chtouka plain.

A detailed description of water uses and resources was made by J.F. Schyns in 2013²² which gives a clear picture of the challenges the Moroccan government is facing in its efforts to develop agricultural production in a sustainable way. For Dutch specialists this might be an area where their expertise can be used further.

²¹ World Bank

²² J.F. Schyns: The water footprint of Morocco and its added value for national water policy, 2013.

5.4 Opportunities in milk processing

5.4.1 Milk processing equipment

In section 2.5 the size and structure of the processing industry was discussed: less than 8 companies that cover >80% of the market for formally processed milk, with more than 70 companies to supply the remaining 20% of the dairy products.

The large players already have their contacts and know the suppliers and dealers that are of interest to them. Through internet they can do their business and in some case they are already in touch with Dutch suppliers of processing equipment.

The small processors often look for advice and offers, but seldom buy the more expensive, higher quality products. For this market a good dealer or agent will be needed: he can guide the potential buyers, help with showing the road to obtain business plans, loans and subsidies and give the technical support needed to make the best choices.



5.4.2 Cold chain and storage equipment

Milk quality is a concern for the milk processing companies, especially for the production of value-added products. Much efforts are made to improve milk quality, but as long as local traders accept lower quality and farmers are not paid individually for their milk this issue will not be solved.

The government is actively stimulating MCCs to meet higher quality standards and discouraging the informal trade in milk and dairy products.

This process will offer opportunities in the chain from farmer to processing plant: testing equipment, cold storage, transport and guidance. It will be difficult to establish contacts with so many MCCs and/or cooperatives when based in the Netherlands, so again the need for partnership is seen as essential to develop business.

5.4.3 Product development

The leading processing companies have the skills and know-how to produce a wide range of dairy products and are ready to compete with the imported products. Feed ingredients are imported for further processing and a well-known Dutch company has been a supplier for many years already.

For the small processing companies this is different. They can pasteurize milk, make yoghurt or some of the typical local dairy products, but it will be difficult for them to compete on the market with the larger players. For them it is important to find a place on the regional markets or a niche that gives them added value.

This type of market is not the commercial type of opportunity that Dutch companies will be looking for, but can only be developed through support programs and donor organisations. Equipment requirements related to product development may become of interest if this does not take too much time and effort from the supplier. An active agent would be needed to initiate this type of business.

In all areas the common factor is that in order to develop a business, it is important to find the right local partner: someone who has the confidence of the potential clients, the connections to deal with banks and government institutions, and who can accept the fact that clients always pay later than agreed.

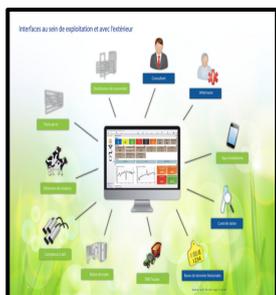
5.5 Opportunities for other Sub-sectors

In the dairy chain there are several aspects that can be supported with modern techniques and software. Here we can think about:

- ◆ Farm management software
- ◆ Smart farming tools
- ◆ Blended learning for agricultural schools and farmers
- ◆ Remote sensing

Farm management software

Professional farms need management software that helps them to be more efficient in their operations. Even on farms with 25 cows such programs will quickly return the investment as cost can be saved on health care, nutrition and reproductive performance. For milk processing companies such programs can make it possible to be more effective in their guidance of raw milk suppliers: the advisor can see that basic data and knows which farms need more attention.



All information readily available for the farmer or advisor

Dutch expertise is available and could be used in one of the support projects for monitoring an demonstration purposes.

Smart farming

Smart farming is an important topic in the dairy sector. The use of sensors is becoming more and more common practice. Many sensors that measure and monitor physical or behavioural characteristics of the animal or characteristics of the products (e.g. milk) or of the environment of the animal are on the market or are being developed. Sensors are used to maximize animal and herd performance, to monitor health of individual animals and, on herd level, to timely detect difficulties and to help the farmer in making decisions. Sensors can monitor the animals 24/7, and this enables them to detect deviation in physical or behavioural characteristics with more accuracy than a person.

Examples of smart farming technologies include milk yield recording systems, inline systems to measure milk components and characteristics, activity meters to monitor behaviour and/or for heat detection, automated measuring systems for body condition scores and positioning systems. The insights obtained with these sensors help the farmer to make the right decisions and to act. With these technologies, the role of the farmer changes from using only his own observations to monitor the animals to combining data and using all that information to make the right decisions. By means of proper processing of these data in combination with decision support systems, the application of these sensors can improve animal monitoring and on-farm decision-making, thus improving cow performance, animal health and welfare and sustainability.

Dutch agricultural colleges provide training for students and farmers, while companies provide the systems for on-farm use.

Blended learning

The 'blended learning' concept combines face-to-face teaching with online learning. In other words, traditional lectures are supplemented and enhanced with studying in a digital environment, in which students are given access to digital teaching material and can study in their own time. There are various benefits to blended learning.

- ◆ Blended learning can save time for the lecturers in presenting theoretical information, that students can now read at a time that suits them best, and
- ◆ Students are given tasks and exercises that they can carry out in group or individually. The results are then discussed at school for which more time is now available.

Good experience has already been obtained in the Netherlands and elsewhere, but Dutch educational institutes have not yet become active in Morocco.

Remote sensing

Remote sensing has many applications, of which agriculture is one of them: either for on-farm use or for government purposes. Some examples are:

- ◆ Crop production forecasting: how much of the crop will be harvested under specific conditions.
- ◆ Assessment of crop damage and crop progress: determine how much of a given crop has been damaged and the progress of the remaining crop.
- ◆ Soil moisture estimation: determining the quantity of moisture in the soil and hence the type of crop that can be grown in the soil.
- ◆ Irrigation monitoring and management: helps in planning the irrigation needs of the soil.

Especially with the limited water resources and recurrent droughts, remote sensing would be a useful tool to predict shortages in yields and to take timely actions.

The market for the above approaches and products would need further assessment to clearly identify the actual needs and scope of services. There appears to be potential, as IT and ICT are quickly developing in Morocco, especially under the young generation.

6 Doing business in Morocco

6.1 Company Experiences

Interviews were conducted with relevant Moroccan and Dutch companies to learn about their experience and views about business development.

Responses from Moroccan side

Several Moroccan companies indicated that their main concern is the lack of knowledge among farmers. Products are in principle all available, mainly from Europe, China and Turkey. The main question is not so much if there is a Dutch product that fills a gap, but are there any Dutch products that can successfully compete on the Moroccan market.

Important factors to conquer the market that were mentioned during the interviews with Moroccan companies, are:

- ◆ Price: Dutch companies are considered to be expensive in comparison with other suppliers, even for similar quality products;
- ◆ Attitude: there are mixed reactions. Some persons interviewed found the Dutch arrogant, others consider them professionals. Building good working relations is essential to develop a business. That means that Dutch companies have to invest time in developing their business and should not expect that ad hoc deals are easy to conclude.
- ◆ Payment conditions – dealers expect more attractive conditions to do business, like the French already offer: delay in payment for their dealers or support in financing agreements for the clients.
- ◆ Service network: clients expect more than just delivering a product. They attach much value to after sales service, availability of spare parts and even guidance in the case of turn-key projects.
- ◆ Language: French speaking export managers will make it much easier to do business and to develop relations. Here we have another disadvantage to the French, who can easily communicate at all levels. *On the other hand, we also see that the Germans are actively involved in Morocco, without apparent language barriers.*

Responses from Dutch companies

Some 50 Dutch companies that are somehow linked to the dairy industry were invited to share their experience and views about doing business in Morocco. A list of companies has been attached as Annex 2. The results of these interviews have been summarized according to the various product groups.

Barn equipment and farm inputs: nine companies were interviewed that deal in barn equipment and/or are specialized in specific products for the housing and management of dairy cattle (manure removal handling, feed distribution, general farm utensils and management software).

Three suppliers can provide total installations and their experiences differ: one company belongs to GEA and the French office does the marketing, another one has not done any business yet in Morocco because of language barriers and strong competition from French companies and the third one tried to establish a local daughter company, but did not succeed. Dutch equipment is of good quality and could compete on a market where quality counts, but the majority of Moroccan farmers is not yet ready or able to invest. Only the professional, large-scale farms can be considered as potential clients.

The suppliers of manure handling equipment and feed distribution have a local dealer, but few or no offers resulted in actual sales. Here too, the potential buyer is a modern, large-scale farm that looks for a quality product. French companies often are in a better position as they offer more attractive payment conditions, have no language barriers and stronger relations with the market players.

Farm supplies and products for animal care are a potential market, but a difficult one to enter. Products need to be approved by the relevant organisations and red-tape can be very time-consuming.

One company is a producer of seeds for fodder production (e.g. grass and Lucerne varieties), but their trade with Morocco takes place via their daughter company in France. Lucerne is an important fodder crop, but for grass seeds – the core business of this company - the market is very limited.

One company produces farm management software and believes there is a potential market in Morocco. In the past several visits took place of Moroccan farm managers and/or representatives of coops, but this did not result in contracts. Before this company will enter the Moroccan market, a reliable dealer/partner has to be identified. Large(r) farms and processing companies could certainly benefit from their product.

Milking equipment: four suppliers of milking equipment were asked for their view and business with Morocco, but from the Dutch offices no direct sales are taking place. This is done through their headquarters or the French office. One supplier of used milking equipment mentioned that when he had a local partner there were regular sales. At present he is looking for a new partner, as this makes a real difference in market development.

'Lely' produces a wide range of farm equipment for milking and feeding, often highly automated and aimed at higher farm efficiency and labour saving. For Morocco labour costs are much lower than in the Netherlands and therefore not enough farmers in Morocco see the benefits of full automation, which makes it for Lely less attractive to invest in a full service and sales system.

Feed and feed ingredients:

The feed industry in Morocco is already well developed, which makes export of concentrates and pre-mixes less attractive, certainly in comparison with countries in West Africa and the Middle East. Nevertheless, one Dutch producer of feeds decided to enter this market, as they see opportunities for combines the sales of dairy feeds with advice on animal nutrition. It has been identified that many farmers lack know-how on feeding management and will benefit from advice.

On the market for milk replacers, one Dutch company has already established a solid base for business in Morocco and competes successfully with other (foreign) suppliers.

Genetic improvement: nine companies were interviewed that deal with either pregnant heifers or frozen semen or a combination of those two.

The reactions were quite similar: in the past most of them exported heifers to Morocco as it used to be a good market, but in recent years the French and German exporters became the main suppliers. These two countries not only have less demanding export certificates, but also a better supply of animals (mainly Holstein and Montbeliard). For the Dutch suppliers, countries like Russia and Kazakhstan are easier to deal with and less risky. Moreover, Montbeliard heifers are difficult to supply (what is available on the market is mainly sold by French companies), while the German Holsteins are in greater demand than the Dutch heifers (heavier animals, pregnancies from 4-7 months). For most exporters Morocco is not a priority country, but it will be easier to deal with if there is a level playing field with France and Germany. It was generally agreed that professional farms are far more suitable for purebred cows with high genetic potential than the smallholders. Those farmers would need proper guidance and support to benefit from this type of animal.

Frozen semen still is a very small market for Dutch suppliers. There are a few large importers that already have their established links, but some potential has been recognized. All suppliers agreed that they are not interested to sell frozen semen at dump-prices, but prefer to provide a quality product to professional farms and breeders. The smallholders have no breeding policy and only look at the price of semen. For frozen semen the export certificate poses no great hurdle, but it appeared that locally produced semen was given an advantage through stricter demands for imported semen. Now that local production stopped, this may offer new opportunities.

The supply of high-quality frozen semen offers a potential, but limited market. Dutch suppliers can offer semen from HF and Fleckvieh sires plus the various breeds for beef production (to be used on the lower end of the dairy herd). Morocco is not considered a prime target for exports.

Veterinary drugs and equipment

Two companies were approached. One did not deal directly with Morocco, but only through its French office. The products were all targeted at poultry and there was no involvement in the dairy sector. The 2nd one is well established in Morocco and works with one of the leading suppliers of veterinary pharmaceuticals.

Milk processing equipment: five suppliers were interviewed, of which two are dealing in refurbished equipment and the other three in new installations (small- and medium sized units up to 100,000 litres/day).

Trade in new equipment as provided by three companies is very limited. There are requests for offers, but often more for comparison with other suppliers. If quality is a priority for the potential customer, then Dutch companies can compete in price with their French colleagues. However, more often the potential clients look for lower prices and accept the less quality product. None of the companies has a dealer in Morocco and for several the language barrier is an additional handicap.

For refurbished equipment there is a market, but mainly with the large processing companies. They know how to find the Dutch suppliers. Small players, like cooperatives that see added-value in starting a processing unit, are less attractive to deal with: they have little knowledge about the business, need much time and information and often conclude that it is either more expensive than expected or too complicated.

One of the companies remarked that although RVO often refers to Atradius as a source of finance, this has been of little value to them. Atradius prefers to deal with large projects and shows little interest in their type of business.

In addition, one company specialised in milk storage equipment mentioned that for them Morocco had potential, especially the large-scale farms and possibly the larger milk collection centres that either belong to cooperatives or milk processing companies. Some projects had been carried out, but competition from French companies is fierce. Through their dealer they receive regular requests for offers, but few contracts.

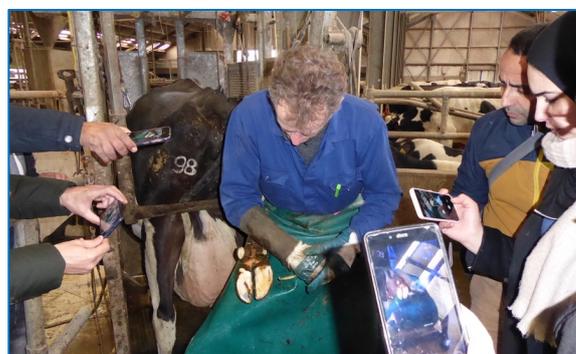
Training and Education: Interviews were conducted with Aeres, WUR, HAS Den Bosch and Cow Signals. None of them is very active in Morocco.

WUR explained that for training and research funding is required, which is difficult to obtain. Algeria and Tunisia receive more development support than Morocco from the Netherlands.

A possible option would be co-financing with EU funding, but this too is a difficult road. Projects that involve WUR usually required total budgets of 6 to 7 million Euro. Livestock is not seen as a priority, but water management and horticulture are offer more potential for studies and funding.

Aeres has had some contacts with Morocco and is interested to promote its training modules for blended learning. Language could be an issue, even though they have some French speaking teachers.

HAS Den Bosch conducted several study tours to Morocco and would like to develop cooperative ties with Moroccan middle- and higher agricultural schools and universities. They recognized that practical training is limited in the Moroccan system and would like to contribute in that area.



Cow Signals is not yet active in Morocco. As they are a commercial company, they would need clients or a donor to conduct their training programs in Morocco.

Conclusions: Morocco is for most companies that were interviewed not a priority country, but all of them were interested to hear more about the potential and opportunities. For many doing business with Morocco is seen as rather difficult because of language barriers, payment conditions, and/or better alternatives. A reliable local partner makes much difference, certainly if that partner already has a good presence on the market.

6.2 Investment support

6.2.1 Access to finance

Access to finance is a key element in doing business, whether it is for trade or investments. In addition to commercial finance by the RABO, ING or ABN-AMRO bank, the Dutch government has three financial support organisations: FMO, Atradius Dutch State Business and the Dutch Good Growth Fund.

FMO – Entrepreneurial Development Bank

(www.fmo.nl)

FMO finances commercially viable businesses and projects, including the agrobusiness. They offer financing in terms of long-term loans (including syndicated loans), equity investments and guarantees. Details on their financing portfolio are presented on their website.

From interviews with representatives of FMO it was learned that FMO is NOT financing projects below 10 million Euro, being a maximum of 25% share in the total investment. FMO favours investments that have a positive effect on climate change: the Dutch Fund for Climate and Development (DFCD) The DFCD will focus on several high impact investment themes, including climate-resilient water systems, water management and freshwater ecosystems, forestry, climate-smart agriculture, and restoration of ecosystems to protect the environment. More information is provided at www.thedfcd.com

Atradius Dutch State Business

(www.atradiusstatebusiness.nl)

Atradius DSB is the official Export Credit Agency (ECA) for The Netherlands, supporting Dutch companies by insuring their export contracts. Atradius is ensuring the following risks.:

- Project finance insurance
- Political risk cover
- Commercial risk cover
- Investment insurance

In addition to risk insurance, Atradius is also preparing Country Risk reports, Country reports and documents such as Market Monitor and the International Debt Collections Handbook. More information is provided on the website.

During an interview the country economist for Morocco mentioned that he believes that the government is facing internal and regional challenges that are not easy to deal with and is financially under pressure. In recent years Atradius was hardly involved in financing any projects/ or contracts for Morocco.

In the past this was different, when heifer exports were much larger and Lely started its business in Morocco. These days there are very few applications for financing projects in Morocco for any sector. Although Atradius is mainly concerned with large projects, there is a possibility for contracts of 250,000 – 300,000 Euro. In those cases, Atradius cooperates with various Dutch banks.

Dutch Good Growth Fund (DGGF)

(Dutch Good Growth Fund - DGGF | RVO.nl)

Are you a Dutch entrepreneur interested in emerging markets or developing countries? And do you need support to finance your plans? The Dutch government provides loans, participations, guarantees, export credit insurance and export finance (with a repayment obligation) through the Dutch Good Growth Fund (DGGF). DGGF is set up by the Dutch Ministry of Foreign Affairs to help Dutch entrepreneurs realise their international ambitions in [emerging markets and developing countries](#) (DGGF countries,). The fund supports investment, import, export and investment funds. Morocco is rated as a DGGF country.

Commercial finance

In the past RABO provided finance and LC's for cattle export to Morocco, but during the past few years financing requests were reduced to zero. RABO is still providing export finance and LC's, but not based on mortgages for land and property in Morocco.

6.2.2 Methods of Payment

Foreign Exchange

in line with the Moroccan liberalization measures initiated in 1993, the Foreign Exchange Office delegated authorized Moroccan banks the power to “freely carry out settlements relating to imports, exports, international transport, insurance and reinsurance, foreign technical assistance, travel, schooling, medical care, savings on income, as well as all other operations considered as current.”

According to government regulations, payment of goods imported into Morocco can only take place after actual entrance of the goods into the country. Buyers are allowed to prepay up to 30 percent of the invoice amount for all goods. Although the Foreign Exchange Office website mentions 40 percent, the latest General Instructions for Foreign Exchange Operations issued in December 2013, revised the new limit to 30 percent.

Banks are authorized to open letters of credit and/or to accept bills of exchange. The letters of credit must include a special clause that stipulates that the “payment is subject to justification of direct and exclusive shipment of goods to Morocco exceeding an import value of MAD 200,000 (\$21,000).” The transport documents justifying the shipment are: the freight bill, airway bill, bill of lading, document of combined means of transportation, or receipt from Post Office for mail parcels.

Prepayment is permitted for the import of goods shipped Free on Board (FOB) valued up to MAD 100,000 (\$10,500). With respect to capital equipment and goods temporarily admitted for active refinement (‘admission temporaire pour perfectionnement actif, ATPA’), complete prepayment is permitted for import of goods shipped Free on Board (FOB) valued up to MAD 200,000 (\$21,000).

It is also possible for the Moroccan bank to ensure full prepayment upon receipt of a document showing that the merchandise is in transit. The bank guarantees to secure payment to foreign suppliers. Importers normally give local buyers up to 90 days’ credit. The regulatory authority with oversight over foreign exchange transactions is the Foreign Exchange Office.

Guides to Moroccan foreign exchange regulations can be viewed on its website at:

<http://www.oc.gov.ma/portal/fr/content/reglementation-changes/guides>.

Tax Issue for foreign billing

Bills for professional services rendered outside of Morocco incur a 10 percent withholding tax. It is important to clarify with the Moroccan business partner if the bill does or does not include the 10 percent tax.

Alternate Payment Forms

For smaller payments to suppliers, many Moroccan businesses now use credit cards, but there are limits on how much money can be spent abroad in one year. If one is doing business regularly in Morocco, it may make sense to open a bank account so that the counterpart can make direct deposits.

Payment terms

Delayed payment is a common issue in Morocco, even though the local legislation states that:

- ◆ Governmental sector (Decision 2-03-703-2006): the payment period may NOT exceed 90 days
- ◆ Private sector (Law 32-10-2012): In case payment term is not determined, it will be fixed on the 60th day after receipt of the good and/or services. In case payment is determined it can NOT be more than 90 days.



7 Final

Conclusions

In the previous chapters we presented a brief overview of the dairy sector in Morocco and its potential for doing business. Bordering on the EU and as the entrance to North-Africa its strategic location is very attractive. The economy has developed over the years, the population growth and there is a stable government. Financial services are well developed, there are well established commercial companies and a good educational system.

With 3.4 million heads of cattle, of which 1.8 million are adult cows Morocco is almost self-sufficient in dairy and beef production. Further growth will have to come from increased demand, value-added products and export. At present this is difficult to achieve. The drought of the recent years had a great impact on feed availability and feed cost, while demand stagnated. Farmers were forced to sell female stock, which led to an overproduction of beef and reduced market prices. Although these conditions are not new to Morocco – droughts occur at regular intervals - the sector always recovered from these set-backs. It also will this time.

Water scarcity is one of the major constraints for agricultural development and for a sustainable growth it is important to make the most efficient use of rain- and groundwater. Efforts are being made to improve irrigations systems and to optimize the use of rainwater.

We have seen that 60-70% of all milk is produced in the irrigated areas and/or the regions with sufficient rainfall. Here the density of milk production makes it also easier to set up milk collection systems for all the smallholders (90% of the farms), who are mainly linked to dairy cooperatives. Milk composition and quality need further improvement and the large milk processing companies all provide training and support to reach higher standards. As payment is still based on the test results of the bulk tank, individual farmers do not yet get paid for their efforts. Another important point of attention is animal nutrition: most cows never reach their genetic potential as farmers lack the knowledge to feed according to the cows' requirement. On the other hand, there are (large) farms that are well managed and reach high standards of production. This diversity also determines the needs of the farmer, his investment potential and the type of products and services that can be offered

The interviews with Dutch companies showed that in many cases there is an interest to learn more about the Moroccan dairy sector, but that business relations have been limited to incidental contacts and orders. Only a few companies have long-lasting relations with local partners and developed a sustainable business.

Doing business in Morocco can be attractive, as there is strong support from the government to develop the dairy sector, investments are required to modernize the farms and training is needed. Moroccan companies indicated that in principle all products are available, but there is always room for alternatives if prices are competitive and serves reliable.

The first step would have to be to conduct a detailed market survey for a specific (range) of products: what is the demand, who are the suppliers, what are the prices and how are the conditions for import, credit and payment.

The second and most crucial step is to find a strong local partner. The milk processing companies are very important players, as they have strong relations with their suppliers and are already providing in all kinds of support activities. The government and credit suppliers such as Credit Agricole are involved in all aspects of dairy development and good relations help to move forward. A dealer who knows the market, has the right connections and the financial strength to deal with delayed payments is the best partner, but may be a bit more difficult to find as they already have their products and partners. However, with a strong partner a sustainable business can be developed as we have seen for a number of Dutch companies.

We wish to thank all persons and companies who provided us with information and sincerely hope that this report will contribute to a strong cooperation and mutual benefits of Dutch and Moroccan companies, knowledge institutes and other organisations involved in the dairy sector.

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Annex 2: List of Dutch Companies and Organisations

Company name	Product	Contact name
Multi Dairy Livestock	Genetics	Hans van der Pol
Hunland/Farm Solutions	Genetics	Wilmar Taal
KI Samen	Genetics	Henk Brons
CRV	Genetics	Tom van der Meulen Anja de Bont
Bles Dairies	Genetics	Henk Bles
Ki-Kampen	Genetics	Gerard Vosman
URUS (Alta Genetics)	Genetics	Rene Coumans
Fa. Schaap	Genetics	Nammen Schaap
Stegerman Vee	Genetics	Gert Stegerman
Agriprom	Barn equipment	Johan Staal
Royal de Boer	Barn equipment	Frans Nauta
Spinder Stalinrichting Dutch Dairy Centre	Barn equipment	Johannes Bottema
Cowhouse	Barn equipment	Rinse Andringa
Trioliet	Feeding Systems	Hans Lambers
JOZ	Manure Handling	Pieter Talsma
Difco International/ Van der Ploeg	Farm Inputs/ Genetics	Rene Kremers
UniformAgri	Management Software	Abdelkader Medjoub
MS Schippers	Farm inputs	Stef van Roijmans
Barenbrug	Seeds	Jan van Winden
MSD Animal health (Intervet)	Health care	
Dopharma	Health care	Frans Bokkers
Van 't Riet	Milk processing	Rob Rodewijk
Van der Heuvel	Milk processing	Nico Maat
Lekkerkerker	Milk processing	Coen van Beek
Ante BV	Milk processing	Herco Hekking
Scherjon Dairy Equipment	Milk processing	Hielke Scherjon
Sunlight Dairy	Milk processing	Remo Meru
Mueller	Milk Storage	Bram van 't Klooster
Fullwood	Milking equipment	Steven Broshuis
Lely Industries	Milking equipment	Marcel van Leeuwen
Farm Service	Milking equipment	Tjepko Bakker
Kanters Melkmachines	Milking equipment	Tijn Kanters
Joosten Products	Milk replacer	Nina Janssen
Denkavit	Milk replacer	Peter van 't Veld
Schils	Milk replacer/Food products	Steef van der Woude
De Heus/Koudijs	Feeds/Ingredients	Harry Schimmel
Fransen Gerrits BV	Feeds	Arthur Gerrits
Micro-Nutrients	Feed Ingredients	Sipke Scheepsma
Aeres	Education & training	Harm Holleman
WUR	Research & education	Jennie van der Mheen
HAS Den Bosch	Education & training	Toon Keijsers
RABO	Finance	Peter Nikus
Atradius	Finance	Niels de Hoog Niels van der Beek
FMO	Finance	Carolien de Wit Hans Bogard

Annex 3: List of feed Companies

LISTE OF MEMBRES AFAC

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