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Ukraine's Path to World Food Power

by Aisha Down

Walk winding roads between villages in the Carpathians of western Ukraine, and you travel back through centuries: cherry orchards, tinned bulbs of country churches, and roadside vendors selling honey, traditional cheeses and forest mushrooms.

Head to fields outside of Kharkiv or Poltava and you leap forward years. Drones hum over fields of swelling wheat, monitoring ripeness. GPS-equipped tractors (combines) on autopilot harvest grain.

The constant is the land and the land's richness. Ukraine's agriculture is not a new story. Its 40 million hectares of farm land were a breadbasket for the Soviet Union. Before then, its black earth fed the Tsars.

But the geopolitics are new. Twenty-five years after independence, Ukraine's agricultural future, for once, belongs entirely to Ukraine. After a 16-year moratorium, the country stands poised to open a market for its agricultural land, a market extinct for nearly a century except for a brief period of privatization in the 1990s.

Analysts predict Ukrainian hectares will be bought and sold after the next election.

Bankers are scrambling to develop financial instruments to make such transactions possible. Entrepreneurs from China to Saudi Arabia to Canada are weighing the market, considering the possibilities of the nation's black soil, the most fertile on earth. And Ukrainian politicians are caught between the hunger of the market

and the fears of their constituents, whose hectares and livelihoods lie in the balance.

World forces reach into rural Ukraine

As politicians, bankers and farmers weigh the future, the invisible currents of today's world exercise their forces on the land.

To the south and east, far beyond Ukraine's horizons, other continents are growing larger and hungrier. Africa and Asia are buying more and more wheat and meat, milk and eggs.

To the north and west, Europe and America develop as promising destinations for organic and small-scale goods -- raspberries and snails, Carpathian floral honey.

Everywhere, climate change alters winters and summers, often unpredictably, bringing new blights on old crops, raising summer

“Its 40 million hectares of farm land were a breadbasket for the Soviet Union. Before then, its black earth fed the Tsars”

> The question is not whether Ukraine's agriculture will be crucial to the world of the next 50 years. Experts predict Ukraine could feed 800 million

temperatures, and drying out fields in Ukraine's south.

The question is not whether Ukraine's agriculture will be crucial to the world of the next 50 years. Experts predict Ukraine could feed 800 million. Its grain production is to reach 100 million tons annually in the 2020s. The question is how the forces at work today on Ukraine's land will play out.

Will the patchwork balance of futuristic megafarms and Carpathian smallholdings remain? Is there room in one country for artisanal honey producers and grain growers with over 100,000 hectares?

Or: who will Ukraine feed, with what, and how?

In your hands is the second issue of The Ukraine Business Journal's Opportunity Reports, a monthly supplement focused on the promises and challenges of this crossroad of continents.

We can't answer these questions for you. But we can give you the tools to make your best guess. Our journalists interviewed snail collectors and raspberry collectives, bankers and drone-makers. We're here to tell you the story of how Ukraine can become a world food power -- and how you, with time and judgment, could be a part of it.

Catch a ride on farm boom with logistics

There are serious obstacles to producing food in Ukraine today. The land moratorium is one. Another is logistics. Ukraine, in the past two years, has exported just over 40 million tons of grain. For now, this seems the limit of what the country's silos, roads and rail cars can handle.

To enable the country to 100 million tons of grain annually will take serious investment—in highways, railways, and the Dnipro river waterway, Ukraine's Mississippi. Investment is coming – from China, the EBRD, and private entrepreneurs.

In fact, says a senior banker in Kyiv, investing in logistics—transportation companies and infrastructure—is a sure ways to invest in Ukraine's agriculture.

After logistics, comes the thorny issue of financing agricultural investment in Ukraine. Over a decade has passed with no land market. This means that, for over a decade, Ukrainian farmers who wanted to invest in equipment or seeds had to use crop receipts as collateral, rather than their hectares.

For this reason, many foreign investors—except very large players—skipped working in Ukraine altogether. Now, with the land market opening and interest in Ukraine's black earth growing, it is becoming clear that there must be more accessible instruments to finance Ukraine's farmers.

Ukraine's government is discussing partnerships with the world's major mortgage banks, offering state land as equity. Meanwhile, banks already in Ukraine are refining offerings and lowering thresholds for farmers to take out loans.

Rich farm land outshines war and crisis

Finally, there is war and corruption—a perennial truth of doing business here. Late into an interview with a major tractor dealer, the head of sales told the UBJ about landmines wrecking a newly-sold machine worth tens of thousands of dollars, somewhere in east Ukraine. Anyone can get burned, and badly. But Ukraine's agricultural potential also offers a truth, perhaps one more compelling.

The same senior banker who recommends investing in logistics also remarks that the largest multinational players in Ukraine's agriculture never stopped investing in the country, even during the 2014 crisis. To them, the richness of the land is a more durable story than the wars and crises on top of it.

They might be right. After all, the saying goes of Ukraine's black earth, "Plant a stick in it, and a tree will grow." For those who can afford to wait and weather the years, there are few better bets than Ukrainian agriculture.

"The largest multinational players in Ukraine's agriculture never stopped investing in the country, even during the 2014 crisis"

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Ukranian Business Journal

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Muddy prophecy: a market for Ukraine's farm land

by Aisha Down

It's not a stretch to say that Ukraine's 40 million hectares of farmland is one of the world's biggest opportunities in agriculture. Spreading from the grassy steppe of the nation's east to the Carpathian forests in the west, Europe's ancient breadbasket could feed one billion people—if used well.

Ukraine now sends wheat to Egypt, corn to China, snails to France and ice cream to Israel. But there's a complication standing between the country and the investments it needs to become a world food power. That is, the moratorium on the sale of private land.

For 16 years, this law has meant that no one could buy or sell 96 percent of Ukraine's farmland. Now, attitudes are changing and talk of lifting the ban stirs in Kyiv. Many bet that it will happen after the 2019 elections. It's a scenario with almost no global precedent. As politicians lay plans, corporations and farmers try to figure out exactly what a market will mean—and how to make it serve their own ends.

Protecting Ukrainians

The law was designed, in part, to avoid a repeat of post-USSR privatization property grabs. It was passed in 2001 as a temporary measure. Since, it has been extended five times, surviving three presidential administrations and two revolutions. Fears of catastrophe haven't diminished. Farmers in rural areas, already struggling to make a living, are buffeted by propaganda whipping up fears. Oligarchs and foreigners will buy Ukraine's fabled black earth. They will go hungry after losing their ancestral fields.

These fears aren't unfounded, says Leonid Kozachenko, former vice minister of Agriculture and now a member of Ukraine's parliament. He's worried about rich foreigners. "Agriculture today, at the global level, is a very serious issue," he says. "With global warming, every year, we're losing about 1.5 million hectares of land. Population is growing. The deficit of foodstuffs becomes very serious."

> "Businesses and investors need the confidence and security of being able to make long-term plans that only come from owning the land that you farm and produce on"

This deficit, says Kozachenko, makes Ukraine's earth a hot commodity. "That's why some countries—China, the Middle East—countries where there's money, but no way to increase production—of course they'd come to Ukraine if they could," he says. "They know that Ukraine can feed no less than 800 million people."

Kozachenko says discussion of this issue is heated in Parliament. While it's likely the moratorium will be lifted in the near future (there was talk of it being lifted this year), he says most agricultural associations agree that land ownership should still be restricted to Ukrainians for at least 10 years after. "The question is the period of time," he says. "Some of the associations are proposing more than 10 years."

Who can buy?

The question for many is: which Ukrainians will be able to buy? "Most associations and specialists say priority should be given to the local farmer," says Kozachenko. "Second priority should be given to a farm that's already using the land on a leasing basis. Number three: any entity or person in Ukraine, no matter where they're located."

Finding out who really is local isn't straightforward, however. Kozachenko says about 35 percent of Ukraine's farmland remains untitled. That's something that has to be sorted before a market can proceed. Kozachenko isn't the only one to raise transparency concerns.

Larysa Bondarieva, head of the CIB branch of Credit Agricole, in Kyiv, says that a proper land register is of concern to the bank as it discusses outcomes of lifting the moratorium. Bondarieva, however, is hesitant to say priority should be given entirely to local farmers. Corporations, she says, are efficient and a source of innovation. "Corporates are much more visible and successful," she says. "To exclude all corporates from such a possibility—it's a question mark for me."

Others say that a free market for all—foreigners included—will best guarantee transparency.

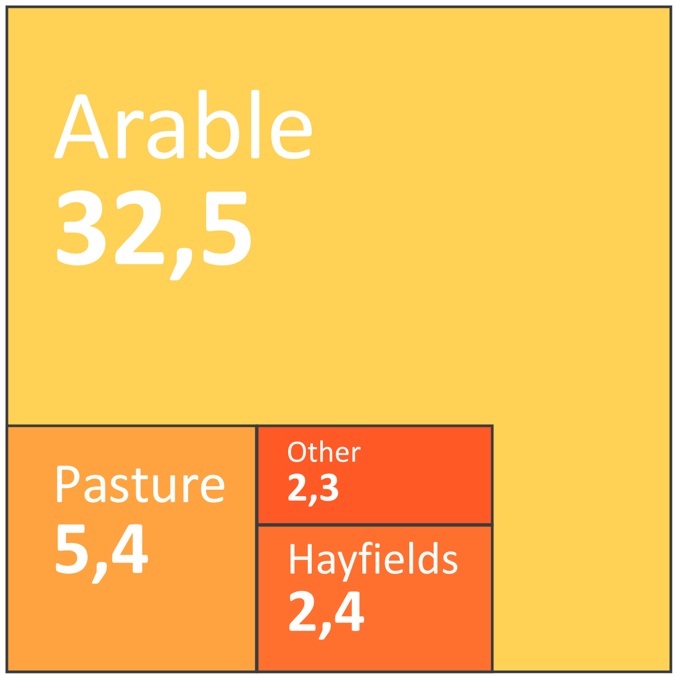
"Restrictions on who can own the land, and how much they can own? It would play directly into hands of large Ukrainian companies now on the land," says Peter Thompson, head of the agricultural brokerage at Cushman and Wakefield, a real estate and property brokerage.

Attracting Investment

Weighed against protecting Ukrainian small farmers is the question of how best to use the country's farmland. It's an issue of investment: Ukraine needs money to bring its productivity on par with Europe and the US. Kozachenko puts that figure at $75 billion in mid and long-term investments. Larger players aren't willing to invest in land they don't own.

"There's incredible potential, under-valued assets and an inexpensive, highly-educated labor-force here," says Simon Cherniavsky, CEO of Mriya Agro Holding. "But businesses and investors need the confidence and security of being able to make long-term plans that only come from owning the land that you farm and produce on."

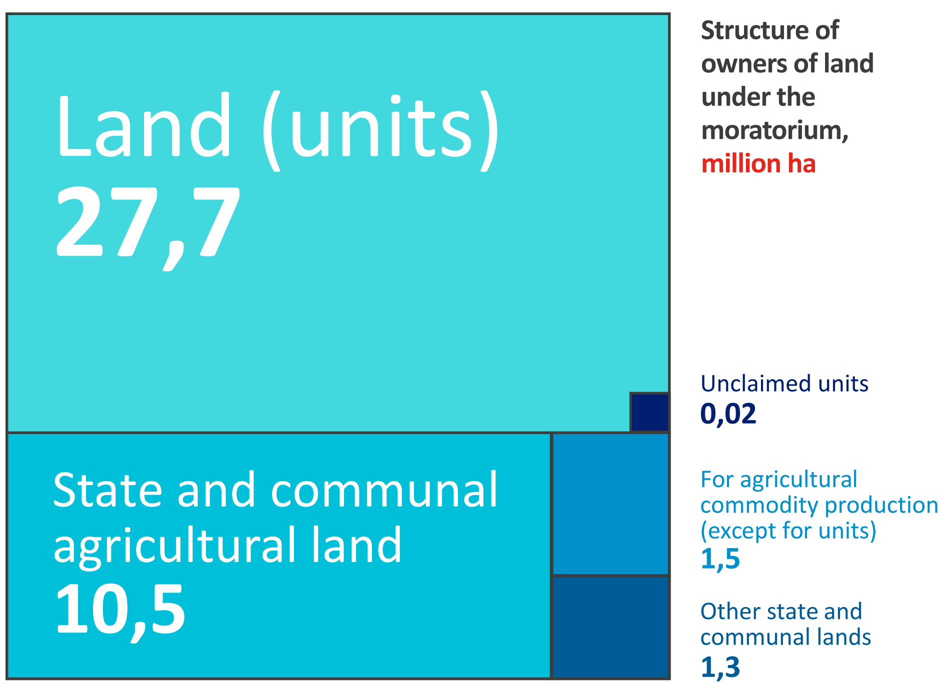
Cherniavsky's view is echoed across Ukraine's agricultural landscape, mostly by larger corporate entities—dairy processors, tractor dealers and agro holdings. In a country plagued by war in the east and shaky rule of law, investors don't want to fund projects without land as collateral. Kozachenko's vision of lifting the moratorium does provide for Ukrainian corporations to purchase farmland. But his priority is for Ukraine's small farmers to make their



Source: Infographic Report «Ukrainian Agribusiness». Authors: Top Lead, Latifundist. Expert partner: AEQUO.

Structure of agricultural lands of Ukraine, million ha

Structure of owners of land under the moratorium, million ha



own investments. Supporting this—allowing farmers to take out loans to purchase land—will require cash, and a lot of it.

"We need to set up a financial institution in Ukraine able to provide mid and long-term financing," says Kozachenko. "I am talking about a mortgage bank, as a second-level financial institution, that could move financing through local banks."
His idea is to partner with one of the 20 largest banks in the world—he names J.P. Morgan and CitiBank—to provide credit to Ukrainian small farmers. The government would offer double collateral—the land on lease, and state land.

"If we set up such an institution, we can provide very good collateral—state-owned agricultural land," this Rada member says. "We have 11 million hectares—at least 4 million would be available as collateral." Bondarieva says Credit Agricole has discussed similar schemes. She says: "The idea is to create a special fund—a fund that will finance this acquisition or partially guarantee, if commercial banks are involved."

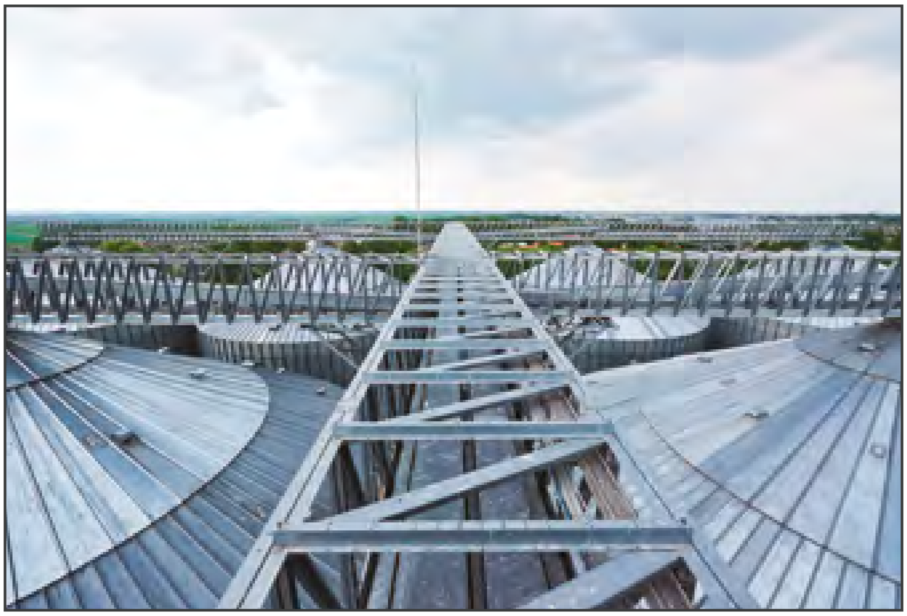
Cloudy prophecy
Predictions of what might happen when the moratorium lifts remain a mix of fortune-telling, analysis, and wishful thinking. Some prophesy doom if it doesn't lift. "If the privatization plan of 2018 is not implemented, and this year the land market doesn't open, then in 2019 and 2020 we can expect a crisis similar to 2009," said Anatoly Drobyazko, a member of the Ukrainian Society of Financial Analysts—prophesying dramatic currency inflation and a collapsing economy without the injection of foreign investment.

Many believe change will be gradual. Markian Malskyy, who heads the Lviv branch of the independent law firm Arzinger, says he receives frequent inquiries about whether Ukraine's land law will change in the next few years. He notes that large agro holdings have much of Ukraine's land tied up under long leases already—leases that likely won't change if the moratorium lifts.

The main problem, he adds, is that most leases in Ukraine are negotiated without a provision to give the leaseholder the right to buy the land, if it goes on the market. Meanwhile, politicians like Kozachenko and bankers like Bondarieva make cautious models about what land market could look like.

Kozachenko imagines an initial price per hectare at around $800 per hectare, with the market driving it up to $2000 to $3000 over the first few years. He says: “The maximum would be the same as Europe’s average, in 10 years.” It could be a valuable investment. He says: “If the legislation allows foreign buyers, then the price would be flying up very fast: more than $10,000 per hectare.”

(Additional reporting by James Brooke, Natalya Datskevych and Jack Laurenson)



Grain silos in southwestern Ukraine (Mriya)

How to Invest in a Rising Food Power

By James Brooke

You have read the reports: Ukraine has the world's largest reserves of black earth farmland. Over the last decade, farming has returned to all of Ukraine's fallow agricultural land – 5 million hectares. By 2020, Ukraine could grow enough grain to feed 800 million people.

So, how does an investor catch a ride on the rise of Ukraine, food power of the future?

The simplest way is through Ukraine's publicly traded agricultural companies. Most are traded on the Warsaw Stock Exchange. AgroGeneration is traded on the Alternext exchange in Paris. MHP and Avangard are traded on the London Stock Exchange's Alternative Investment Market, or AIM.

Next year, New York's NCH Capital, Inc. plans to open its fourth Ukraine farm fund to investors. Starting in 2005, NCH has invested $700 million in Ukraine agriculture through three funds, successfully running 50 farms. "A US investor can buy on the Warsaw exchange," says Alexander Paraschiy, head of research at Concorde Capital investment bank. From Kyiv, he follows five agricultural stocks traded in Warsaw. "Investors are mostly Polish funds, some British, some Americans."

"There is some discount for Ukraine –maybe 50% – compared to peers in Europe and South America," he said, comparing to publicly traded farm companies elsewhere. "Polish investors are usually very sensitive to

> "There is some discount for Ukraine – maybe 50 percent – compared to peers in Europe and South America"

geopolitical issues in Ukraine. They are very close. They are afraid of what is going down."

You can rent Black Earth –but not own it

Like all frontier markets, Ukraine has its peculiarities. Here is the big one: in Ukraine, farm companies

Source: Infographic Report «Ukrainian Agribusiness».
Authors: Top Lead, Latifundist.
Expert partner: AEQUO.

AEQUO
Opportunity Reports

cannot buy title to the lands they farm. Instead, big companies maintain platoons of lawyers to manage thousands of leases. "This is a rental market, not a land market," OlehBakhmatiuk, owner of Ukrlandfarming, recently told Interfax. To work total holdings of 570,000 hectares, he said: "I have 220,000 contracts and 500 people, who work with them every day. Rent rates have recently risen on average by 2.5 times in Ukraine."

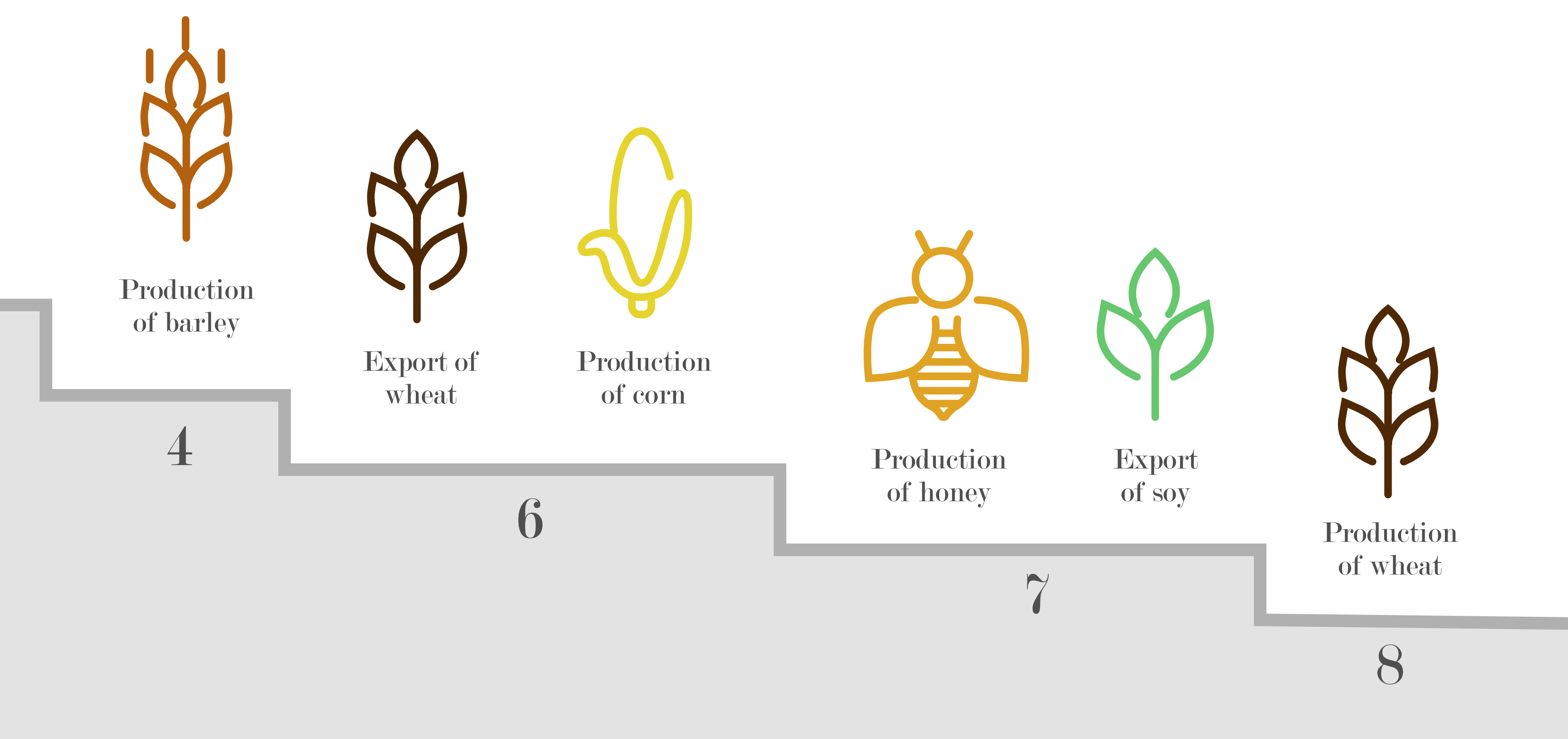
Partly due to rising rents, partly due to the bureaucratic hurdles, Ukrlandfarming reduced its land bank last year by six percent. Despite the complaining, large publicly traded farm companies have made their peace with the system. They lobby to ensure that any shift to a private land market would be gradual. Direct foreign ownership of land is expected to be impossible for a decade.

"All our companies consider free trade in agricultural land as a risk for them," said Paraschiy, the analyst. "They are afraid they will have to buy a big portion of land – and have to pay for it. Some of them are doing their best to prevent this land reform. They are paying tiny lease fees to landlords, so land reform, in the short term, is a bit risky for them to preserve their land banks." In a country where the main agro-business magazine is called "Latifundist," the status quo is not expected to change greatly in the next 5-10 years.

Over the last century, Russians and then Germans coveted Ukraine's rich farmland. Now, there seems to be no real threat of foreign tanks grinding once again across the black earth. In 2014, the Kremlin wanted 33 percent of Ukraine. But since then, Russia and its separatist allies have been forced to settle for three percent, a southeast industrial rust belt.

Modern, world-beating companies
In the other 97 percent of Ukraine, several publicly traded agro companies merit watching. "We like Astarta, we like IMC, and we like Kernel," said Paraschiy. Astarta Holding, the nation's largest sugar producer, has been listed on the Warsaw Exchange since 2006. IMC, a grain, oilseeds and dairy giant,

Ukraine's agricultural export rankings



conducted its IPO on the Warsaw Exchange in 2011. Kernel, the world's largest producer and exporter of sunflower oil, exports its products to 60 countries. It has been traded on the Warsaw Exchange since 2007.

Other Ukrainian farm companies traded on the Warsaw Exchange are Agroton and Milkiland. After tripling its land during the 2000s to 151,000 hectares, Agrotonnow operates 285,000 tons of storage capacity and is the sixth largest producer in Europe by harvested land among publicly traded agribusinesses. Milkiland Ukraine accounts for about half of the one million tons of milk the parent company, Milkland NV, produces in Poland, Russia and Ukraine.

Larysa Bondarieva, board member of Credit Agricole Bank in Ukraine, agrees. "The easiest way to invest is to buy shares of publicly traded big and good Ukrainian holdings working in agriculture," she said, citing MHP and Kernel. Based in Myronivka, 100 km south of Kyiv, MHP produces well over half of Ukraine's industrially produced poultry and is a major exporter.

The dream that became an investor nightmare

On European stock exchanges, the big price discount for Ukrainian farm shares is largely because of past, hair-raising corporate governance problems. The whopper was Mriya, or 'Dream.' Launched on the Frankfurt Stock Exchange in 2008, Mriya was delisted in fall 2014, after a massive fraud came to light.

"Mriya was publicly traded on financial statements audited and signed by Ernst and Young," recounts Michael Bertram, Ukraine director of NCH. But Mriya had a second, secret set of books.

"Mirya was completely over leveraged – 300,000 hectares and $1.5 billion debt – it had $500 a hectare in debt," says Bertram, a German with an MBA from Harvard Business School. "At one point, Mriya could not pay the debt. Then, [Western] creditors took over the company and tried to find where the $1.5 billion went.

The problem in Ukraine, is you cannot

Left: grain silos are growing feature in Ukraine's agricultural landscape. Bottom: Multi-combine harvesters harvesting the wheat fields of Mriya. (Mriya)

> The Ukraine ag sector has, with only a couple exceptions, been a case study in corporate governance minefields for foreign investors

trust audited financial statements," he continued. "Mriya happened, and investors said, 'We cannot trust financial statements, and so we have no collateral.' It became more difficult to get capital for agribusiness."

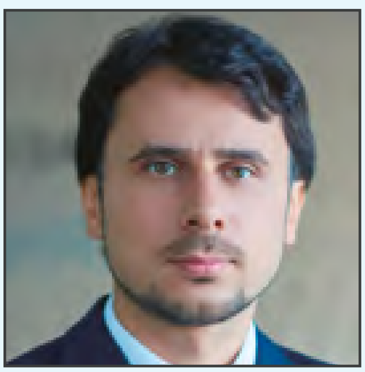
An American investor with 20 years of Russia-Ukraine experience, also warned of a history of poor corporate governance in Ukrainian corporate farming. "The Ukraine ag sector has, with only a couple exceptions, been a case study in corporate governance minefields for foreign investors," he wrote in an email. Still invested in Avangard, a major egg producer, he asked for anonymity. "Too many corporate leaders have proven to show they are not worthy of foreign investment."

Western management: Bankable?
Western company managers say Western management reduces Ukraine risk. "AgroGeneration is Western-managed," said John Shmorhun, the American CEO. A former US Navy pilot, Shmorhun ran DuPont's agricultural investments in Russia and Ukraine for 18 years. Referring to the market where AgroGeneration's shares are listed, he said: "AgroGeneration is publicly traded on Alternext in Paris. This is one of the strictest exchanges." "SigmaBleyzer has been investing in Ukraine for over 25 years with great success," he said, referring to a Houston-based private equity firm that is majority investor in AgroGeneration. Established a decade ago, AgroGeneration now farms commodity crops on 120,000 hectares in five regions of Ukraine.

Bertram, the German director of NCH Ukraine, say investors miss opportunities if they spend too much time looking in the rear view mirror. "The operating environment in Ukraine was never as good as today," said Bertram, a Russian-speaker who has been with NCH in Ukraine for 15 years. "At the same time, the perception of Ukraine was never as bad as today."

Investments into Black Earth: Trends and Opportunities

Yulia Kyrpa,
Partner, AEQUO



Mykhailo Soroka,
Associate, AEQUO

Viktor Komziuk,
Associate, AEQUO

AEQUO

Over the last three years, Ukraine's agricultural industry has been growing rapidly.

In particular, 42.7 million hectares of agricultural land about 28% of the world's thick black soil, or chornozem, and a moderate climate provide a unique natural basis for growing a wide range of crops with high yields. Combined with convenient location and adequate infrastructure, investments into Ukrainian agriculture present tremendous opportunities. Last year, Ukrainian agrocompanies exported almost $18 billion of food. Asia and the European Union were the main importers. Corn, wheat, and barley represent the largest exports. Sunflower oil traditionally brings the highest export income to Ukraine's economy.

For a long time, however, the agricultural sector of Ukraine remained unattractive to foreign investors due to a number of institutional barriers and lack of necessary local knowledge required to start and develop business in the country, the bread basket of Europe. Some obstacles are still in place, but the approach to existing barriers has changed. Recent legislative reforms enable foreign investors to significantly mitigate Ukraine-related risks.

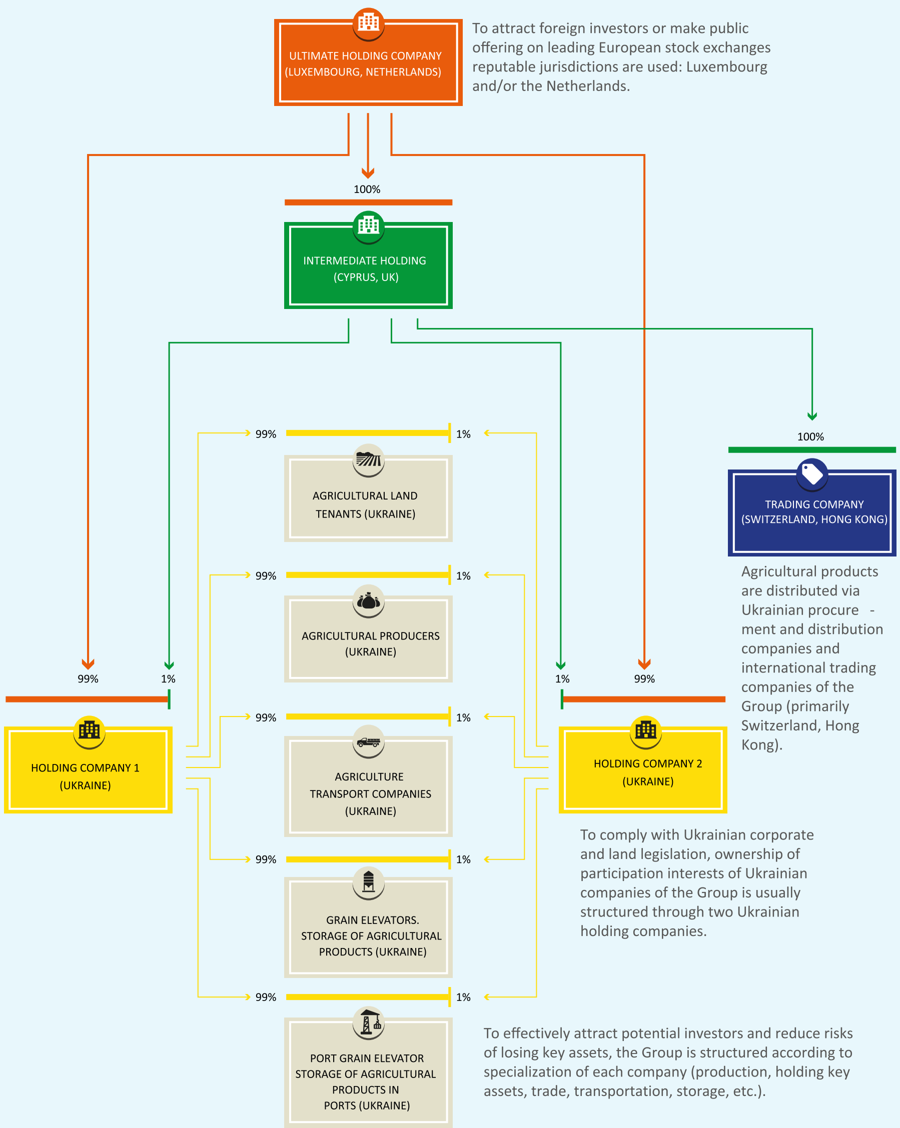
One notorious impediment that used to scare off foreign investors was the moratorium, or ban, on the purchase or sale of farm land. Most highly fertile agricultural land, owned by 6.9 million individuals, are out of the free market.

Although, the nation's land bank is divided into small plots of several hectares, the average Ukrainian farm cultivates 132 hectares. At least 10 agricultural holdings in Ukraine have assembled large land banks, from 100,000 to 600,000 hectares. Such land consolidation is possible through either land lease or emphyteusis agreements.

Agricultural companies lease land plots on a long-term basis. A long-term lease – with statutory restriction up to 50 years — is a second-best option to bypass the ban on purchase. Emphyteusis is an option to evade the moratorium. As opposed to a lease, it allows using agricultural land without any limitations to the term of the agreement.

For international agricultural groups, it is advisable to structure their Ukrainian business and assets based on the aim/focus of each company — production, key assets holding, trade, transportation, storage. This effectively attracts potential investors and reduces risks of losing key assets. A group presence in Ukraine is required to work around a prohibition on foreign direct investment in Ukraine's farm land market. Generally, a two-tier company structure is required to comply with corporate and land legislation. Agricultural products are distributed via separate Ukrainian trading and distribution companies, as well as international trading companies of the Group — primarily Switzerland, Cyprus and Hong Kong.

RECOMMENDED CORPORATE STRUCTURE



Also used are intermediate holdings — usually in Cyprus or UK — and ultimate holding companies. The latter are established in reputable jurisdictions to attract foreign investors or to make a public offering on leading European stock exchanges, e.g. London, Luxembourg, Netherlands. These corporate structure provide the best risk allocation options, allowing use of instruments and benefits existing in several jurisdictions and are viewed as the optimal way for fundraising in the international capital markets.

An agricultural company's choice of financial instrument to raise funds depends on the objectives and the amount of funding needed. Companies may issue Eurobonds, conduct IPOs, or receive syndicated loans for large-scale financing. Such instruments allow for raising hundreds of millions of dollars, but they require proper preparation. They can be time-consuming and are technically complicated. For smaller scale projects, bilateral loans, export financing, and agricultural receipts normally are used.

Finally, it is worth noting that setting up a business in Ukraine – not only agricultural – has become easier and safer. The optimism is based on legislative trends started with new laws on LLCs, shareholders agreements, and new consistent and clear procedures for disputes resolution.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Mriya Awakes from Investor Nightmare

by Jack Laurenson

Since 2014, Mriya, or 'Dream,' has been a nightmarish tale told to spook foreign investors about Ukrainian agriculture. The shares of the massive agroholding were sold on the Frankfurt Stock Exchange. Its two Eurobonds were listed on the Irish Stock Exchange. Ernst & Young signed off on its financial statements—for five years running.

Then, in the summer of 2014, the billion-dollar house of cards collapsed. Creditors discovered that the controlling family, the Gutas, kept two sets of books. One Guta was overheard, exclaiming partly in glee, partly in amazement: "We ripped off the Rothschilds!" The impact of Mriya's collapse was so great that even today Ukraine agro executives look at depressed prices on the Warsaw Stock Exchange and bemoan the "Mriya discount."

Moving past disaster

In early 2015, after Mriya's collapse, control flipped to creditors. They decided to preserve the holding—which had, by then, defaulted on $1.1 billion of debt payments to American, British and French creditors.

They appointed Simon Cherniavsky, an American executive with now 12 years of experience farming in Russia and Ukraine, to serve as Mriya's turnaround man. From a base in Ternopil, the company grows wheat, corn and sunflower spread over 250,00 hectares in central Ukraine. "The lessons to be learned from this whole story are numerous," Cherniavsky, CEO of Mriya Agro Holding, says in an interview in Mriya's Kyiv office.

"But the most important takeaway lesson for me is: it's very important to pay close attention to your investments. In a country like Ukraine, a hands-off approach will never work."Cherniavsky believes his team is starting to turn things around. But, with a huge pile of debt, it's a long way up for Mriya.

Million-dollar Theft

Bankers first suspected that something was wrong at Mriya Agro Holding in 2014, when numbers provided by the Gutas—the founding family— seemed too good to be true. Analysts warned that a default on the company's $1.1 billion in foreign debt was coming. It did, and brothers Andriy and Mykola Guta fled Ukraine to Switzerland.

In advance, they allegedly stripped off millions of dollars in company assets, after embezzling hundreds of millions of dollars in foreign investment. They left Mriya bankrupt in late 2014. "The sheer scale of the fraud that was revealed was staggering," says Cherniavsky. "There's evidence that they sold off stockpiles of equipment, reassigned land leases, had been overstating construction costs and using fake purchasing agreements to siphon away money for years."

The Gutas fled, but their lieutenants remained in Ternopil, haunting Mriya. As investors took over, armed men raided company property, stealing even more machinery—including helicopters—and beating company employees. Local police helped Mriya take back control. But they seemed to drag their feet to protect the Gutas, says Cherniavsky.

State of the art seed drills at Myria

> "In a country like Ukraine, a hands-off approach will never work"

Criminal Investigation
Mykola Guta, the former CEO, was placed on an INTERPOL wanted list. Since then, investigations have stalled. To date, no one has been prosecuted. Some imply: corruption. "There's a lot of frustration with how the criminal case has proceeded," says one man close to the Mriya saga. "This is low-hanging fruit for investigators and the prosecutor's office here in Kyiv."
Cherniavsky chooses his words more carefully: "I don't want to say that there hasn't been any progress. Because there has been. But investigators are dragging their feet and don't seem to have enough resources to properly handle this case."

The National Anti-Corruption Bureau of Ukraine, or NABU, heads the investigation into fraud at Mriya. Company sources say that only one investigator at the understaffed unit works on the case. He also is investigating dozens of other crimes. NABU didn't respond to multiple requests for an interview with UBJ, but said in an email that investigation was ongoing.

Ukraine's government has offered reassurances. In September 2016, the UBJ asked Prosecutor General Yuriy Lutsenko about Mriya. He said that he was personally looking into it. Other officials last year assured reporters that President Petro Poroshenko was 'engaged' in the case and was pressing law enforcement officials to take action.

One source at Mriya alleges the Guta family's close political connections in Ternopil and Kyiv have blocked prosecution. Cherniavsky does not believe the alleged fraudsters will be prosecuted. "I think there will be a settlement with the Gutas before there is any conviction," he says.

> Mykola Guta, the former CEO, was placed on an INTERPOL wanted list. Since then, investigations have stalled. To date, no one has been prosecuted

Left: *Mriya's fields near Ternopil, Ukraine. Below: Mriya's grain silos and elevators onsite to store harvest. (Mriya)*

Turning around the company
Mriya's shareholders seem encouraged by the turnaround that Cherniavsky and his team have begun. With several injections of cash in 2015—an initial $25 million and a further $46 million—the nearly-broke company has started farming again. The financing was used to replace stolen equipment and buy seed, allowing the company to modernize operations and boost production.

Despite losing some of its leases to fraud, Mriya still operates a 180,000-hectare land bank. They've had limited successes in reacquiring stolen hectares. Police have helped them to recover 150 units of "lost" machinery. It's helped. "Last year, we had a good season and things are looking much better," says Cherniavsky. "Our yields are up by as much as 30 percent, we produced about 600,000 tons in total." Now the company is restructuring its $1.1 billion debt. The goal is to cut the amount to $300 million. The rest is to become equity for creditors.

Soon the business will be for sale. Mriya values current assets at $150 million, with the potential to grow to $350 million in the near future. After years of turmoil, Mriya is back in business. But the company stands as a warning signal for potential agricultural investors to be careful and vigilant.

(Additional reporting by James Brooke)

" I think there will be a settlement with the Gutas before there is any conviction "


ASE
DTRAC

Foreign Tractors Dig Ukraine

by Aisha Down

From his dealership in Concordia, Kansas, in the heart of America's grain country, Harley Adams, CEO of CTI, has a bright idea. CTI has been dealing John Deere tractors and farm machinery in Kansas for half a century. The company sells and services both new and used machines: combines, tillage equipment and tractors.

But a widening divide in his US customer base has made some products harder to move. His high-end customers always want the newest models. After putting a year on a piece of equipment, he says, most sell it straight back to CTI. His less-wealthy customers rarely can afford to spring for a machine. If they do, they want something cheap—not a top-model John Deere with just a year on it.

With lightly-used tractors piling up, Adams got an idea. His target? Ukraine's farmers. "We're trying to develop a new marketplace for high-quality used equipment," he says of Ukraine, the Argentina of Eastern Europe.

Combines Follow the Crops
Adams isn't alone in eyeing the tractor needs of Europe's age-old breadbasket. The world's major agricultural equipment manufacturers—CLAAS, AgCo and John Deere—all have offices in Kyiv. With a third of the world's black soil, and grain yields increasing significantly over the past decade, Ukraine is a hard market to miss.

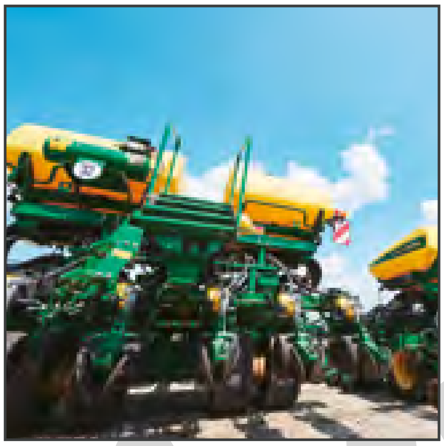
Tractor demand increased after the Euromaidan revolution, says Anton Kostyrko, Marketing Manager of AgCo's office in Ukraine. Last year, some 3000 imported models were sold in Ukraine. For some agribusinesses, there are just no alternatives. "I did a calculation, and one Horsch Maestro is more efficient than 10 XTZ tractors," says Kostiantyn Ilchenko, PR manager of Agricom Group.

Horsch Maestro is a high speed, German-made seeder. XTZ, meanwhile, stands for Kharkiv

> "If you have 100,000 hectares versus 10,000 hectares, you have to make your business effective," Palamar says. "You buy a bigger, more powerful machine"

Tractor Factory, Ukraine's Soviet-era manufacturer of agricultural machinery. Kharkiv makes far cheaper machines than John Deere and AgCo. But Kostyrko says many Ukrainian farmers are ready to upgrade. "They travel to Europe—they try to be more and more professional," he says. For North American equipment suppliers, a big challenge is figuring out what specifications of equipment will sell in Ukraine.

Big Fields, Powerful Equipment
Adams says North American equipment sells well. Ukrainian agriholdings often have tens of thousands of hectares, dwarfing



Left: Case New Holland industrial tractors tilling soil. Above: Sunflower seeds flowing through high-speed loading systems. (Mriya)

those in the rest of Europe. "Some Ukrainian producers say directly they'd rather use high-quality used North American equipment," he says. Ivan Palamar, Head of Market Development in Ukraine for CLAAS, agrees. Ukrainian holdings have a lot of land.

"If you have 100,000 hectares versus 10,000 hectares, you have to make your business effective," Palamar says. "You buy a bigger, more powerful machine."

Kostyrko, on the other hand, says AgCo focuses on the company's European brands—Fendt and Massey-Ferguson. Large holdings buy big tractors, he says, but mid-sized Ukrainian farmers are looking into more manageable machines. "We still have interest in tractors that are 300-plus horsepower machines," he says. "But 150 to 200 horsepower machines, the sector traditionally occupied by Belarusian tractors, that sector is also growing."

Needed: Training to Maintain Computerized Tractors

A big question for agroholdings is servicing an imported tractor. Tractors have gotten more complicated, more computerized. Kostyrko admits that newer machines can intimidate. "Have you been inside the newest model of tractor?" he asks. "The latest Lexus and Mercedes cars are simpler. There are many buttons. There are many screens."

Palamar recalls a potential client who approached him at a major agricultural equipment conference last year. "He said, 'Oh, if only you could sell me this tractor with an operator!'"

Dealers Train New Operators

Lack of training is an issue that dealers try to remedy. When a client buys a new machine, AgCo offers two to four day workshops to the tractor operator, says Kostyrko. It's enough for a driver who already knows the basics of operation. Meanwhile, Palamar says that CLAAS takes some operators back to Germany for special winter workshops in machine operation. "We don't take empty guys for training," he says. "We train operators who have licenses to drive machines."

The cost of not training drivers—in damaged machinery and lost harvests—is too high for suppliers to do otherwise. Petro Melnyk, CEO of Agricom, says his security guards make sure only the trained driver operates his tractors. "It's like for an aircraft," he says.

Needed: Tractor Loans

Sales figures are improving. But agricultural equipment remains an uneasy market. War and corruption can make long-term investments chancy. "We had a dealer who sold two harvesters, two to three years ago," says Palamar. "He couldn't deliver them to the client because the area had been mined." The dealer sent him pictures of half-exploded tractors.

A bigger issue is Ukraine's moratorium on selling private land. Farmers who don't own their farmland are hard-pressed to get a loan. Banks that will loan against future are few. Equipment suppliers says it hits their business. "If we had sufficient financial instruments for our products, we'd have sold more machines," says Palamar.

This concern reached Adams, in north-central Kansas. "The overwhelming obstacle is going to be the availability of credit," he says. "Everyone in Ukraine would like to have credit." But he's not giving up.

Looking ahead, he concludes: "It's very apparent to me that Ukrainians are about to explode with growth, compared to the rest of the world."

> "It's very apparent to me that Ukrainians are about to explode with growth, compared to the rest of the world"


JOHN DEERE
S770i
635X

Space-Age Drones Meet Post-Soviet Farmers: Agritech in Ukraine

by Aisha Down

A smartphone app calculates the area of growing leaves. A sensor monitors grapes ripening on the vine. Drones fly over fields of grain, determining optimal fertilizer distribution.

From a Kyiv's-eye view, there are few Ukrainian industries more promising than smart farming. Just take agriculture, the nation's largest sector, and combine it with IT, its third-largest sector, and you can't make a surer bet. Ukrainian agritech has been elbowing its way onto the world stage over the past few years—sending startups like Agrieye to prestigious European accelerators.

But, outside of Kyiv, progress isn't so straightforward. Ukrainian small farmers, often over 50 years old, are suspicious of innovation—at least, according to smartphone-toting startup owners. And as agribusinesses develop impressive IT departments and buy fleets of drones, integrating new technology into their sprawling businesses is not easy.

Cloud-Castle Purchases

Agritech solutions are harder to sell now than three years ago, says Artem Belenkov, the founder of Smart Farming, a Kyiv-based agritech company. Several buyers were burned.

"Three to four years ago, people were just selling good ideas," he recalls. "You sold the idea of a better life to the owner of a company—he'd at least try it. Now, if you're trying to sell something, you're trying to sell it to someone who's already tried it, and 90 percent of the time it didn't work." Many people who've spent time farming in Ukraine have favorite examples of cloud-castle purchases. Bohdan Kupych, director of Borsch Ventures, describes a large agribusiness with a "NASA-style control center. I don't know that it did them much good," he says with a laugh.

Yuriy Petruk, CEO of AgTech Ukraine, describes an agriholding that bought "a fleet of drone planes," but didn't have a way to properly analyze the resulting data, gigabytes of pictures. That set them back $200,000.

Belenkov says the waste is significant. "For most companies—80 percent of all the money invested in new

technologies, in agriculture in Ukraine is completely lost, or at least is not effective as it could be, or changes nothing," he summarizes from experience.

But, though money has been lost, the problem is not with the technology itself. Ukrainian tech companies often are at the cutting edge of innovation, producing ideas, apps, and equipment that attract attention and investors from Norway to San Francisco. Instead, say Belenkov and Kupych, the problems come when farmers try to put flashy technologies to use.

Too Much Data, Too Little Expertise

One facet of the issue is the farmers themselves. They operate differently than today's IT professionals. "There's a post-Soviet era business culture," says Smart Farming's Belenkov. "IT people are young, agriculture—50-60 years old. They've got poor human resources, poor management styles, poor management skills."

But even large agribusinesses well supplied with IT professionals struggle to effectively use new technology. The problem is that most agritech innovations are solutions to specific problems—an app to calculate the area of a leaf, for example, says Kupych. They don't offer a framework that integrates them in the larger process of operating the farm.

"More and more data is being collected—but data is not being used very well," says Kupych. Or, as Belenkov put it, you can buy a drone to take hundreds of thousands of pictures of your field. But, without good image-processing software, these pictures will remain pictures—an inefficient, unusable source of data about your ripening wheat.

Integrating Innovation

It's a problem that's getting notice. At a recent conference, AgriEye CEO Victor Lazorenko described the problem of developing systems to integrate and use agricultural data as "a whole field for innovations." Unlike finance or telecom, agriculture now lacks such systems, as well as an integrated software platform in which innovations can be used, Kupych says. "Agritech lags other industries by 10 to 15 years," he adds. "There's a lot of progressive technologies there, but still no holistic approach."

> "More and more data is being collected— but data is not being used very well"

“Newcomers to the market-they’re like a blind kitten”

Ukrainian villagers, he affirms, don’t flock to buy soil sensors displayed in the town square. Communication skills, and connections, are key. “If you try to sell ‘innovations’—they won’t know what you’re talking about,” he says. “Newcomers to the market—they’re like a blind kitten.”

Olga Afanasyeva, executive director of Ukraine Venture Capital Association, largely agrees. “There are a lot of students, engineers, who are doing things,” she says. “But they don’t see business. They think they will make something great and the customers will come.”

The Future of (Smart) Farming

To those in the business today, agritech is the future of farming. But it’s a subtler question than whether to buy a fleet of drones. Belenkov’s consultancy works with large agriholdings. Instead of offering drones or smartphone apps, his company helps clients integrate new technologies with their operations. Petruk, of AgTech, says the farmer is best situated to decide how best to apply agritech.

“The average farmer in Ukraine has 300 hectares,” he says. “For him, it’s ok to have GPS steering (on his tractor), but he doesn’t need precision farming. It wouldn’t pay back.” Petruk lists useful innovations to help smaller farmers: aids to decision-making, like field journals and software that tracks cash flow, and weather stations for fruit and vegetable growers to monitor pest threats.

Kupych agrees, concluding: “There’s a huge range of technologies—sensors, robotics. It’s cool, but that doesn’t mean it’s for everyone.”

Rebuilding Ukraine's Mississippi

by Aisha Down and Natalya Datskevych

From company headquarters overlooking the Southern Bug River, 65 km from the Black Sea, Oleksii Vadaturskyy, general director of the logistics company Nibulon, is hatching plans.

To his north are the plains and lowlands surrounding the Dniproriver, the fourth-longest in Europe. Ukraine's breadbasket lies here, stretching to the northeast. These fertile plains make Ukraine a growing world food power. The nation's grain production could swell to 100 million tons by 2022.

To his south is the Black Sea, the gates to the hungry markets of North Africa, the Mideast and Asia—the main destinations for Ukraine's grain. But, between land and sea, there's a problem: logistics. Grain production might be improving, but Ukraine's capacity to move truckloads and trainloads to the Black Sea ports is near its limit, agribusiness executives warn.

Roads can be potholed, narrow and unsuited for constant flows of heavy trucks. There's a shortage of rail cars, exacerbated by a lack of grain silos and seaport elevators. Grain wagons sit on rail tracks near port elevators for days. To Vadaturskyy, to the Infrastructure Ministry, and to planners from Holland, a great canal country, there's a solution: the rivers.

Soviet Legacy

The potential of Ukraine's rivers is not just a question of bad roads and few rail cars.

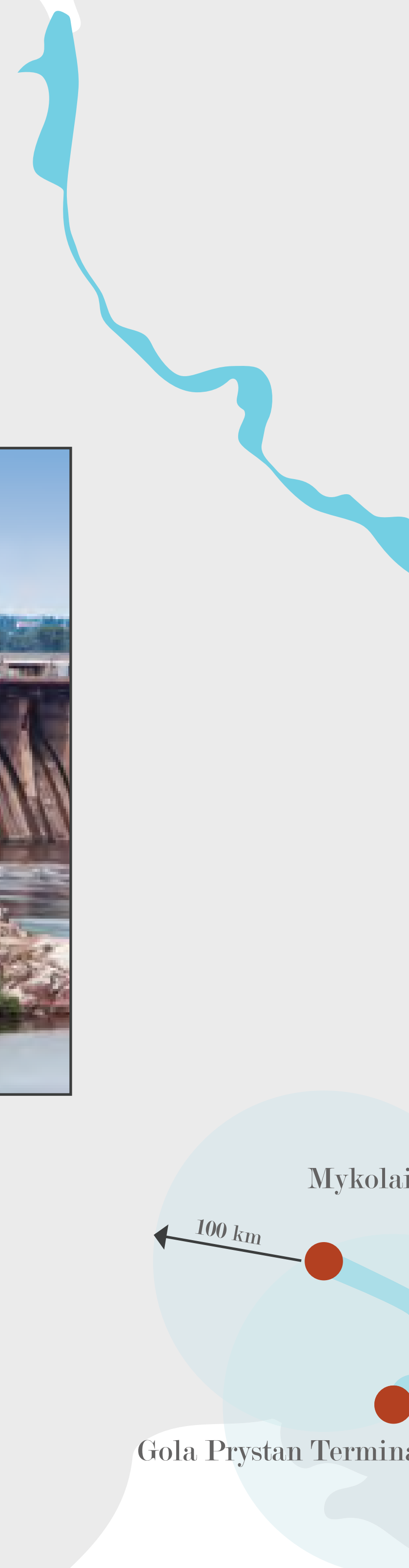
One barge can carry as much grain as 200 trucks. Moving a ton of grain by

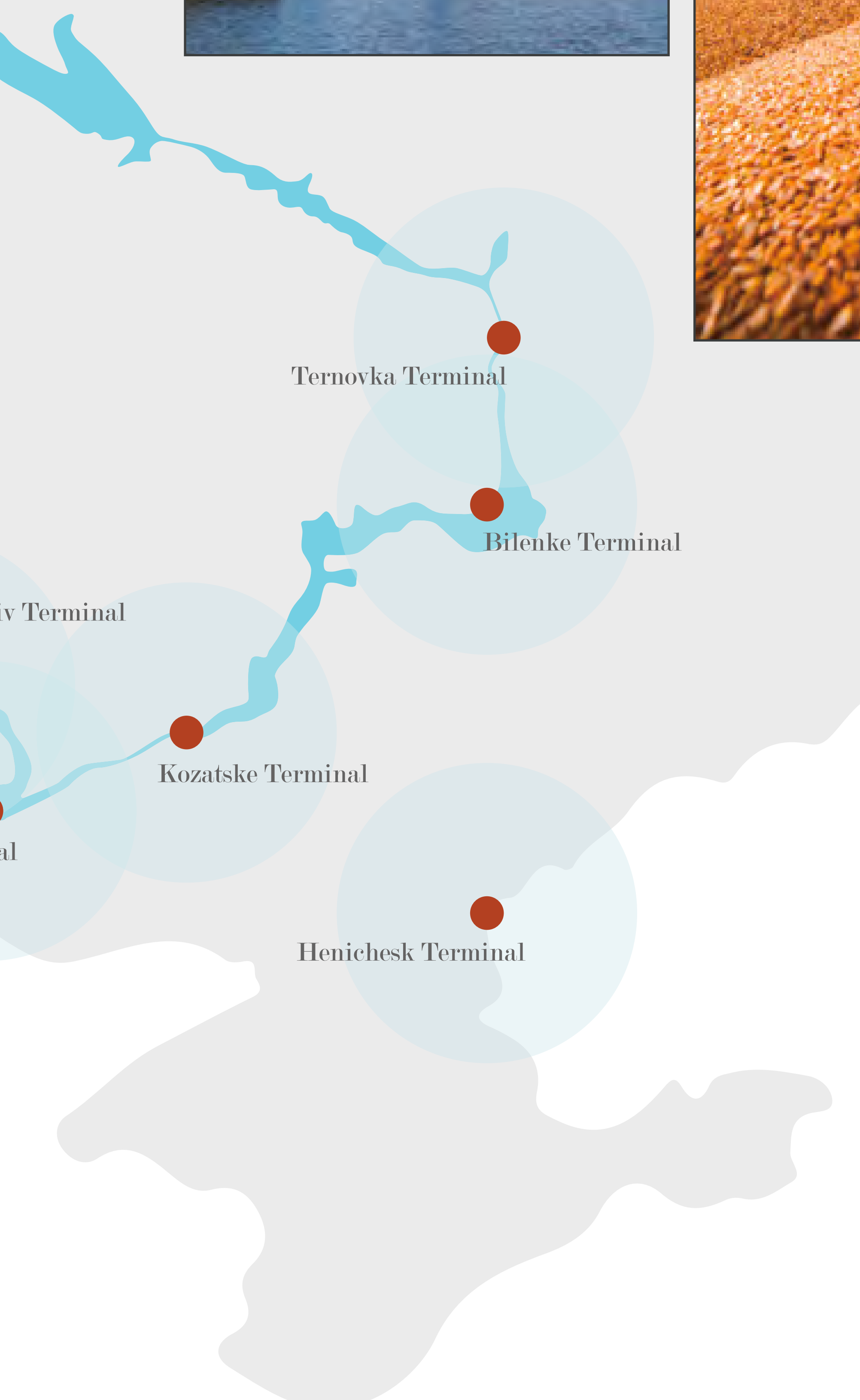
river takes about a third of the fuel as moving the same distance overland.

The USSR was well aware of this. In Soviet times, a cascade of ship locks made the Dnipro a busy artery for cargo. The river once carried 20 percent of the country's grain downriver to sea, says Victor Dovhan, Ukraine's Deputy Minister of Infrastructure.

Most locks were built in the 1950s and 60s, when Ukraine was the breadbasket of the Soviet Union. There are six on the Dnipro, the nation's main river. Dovhan says the trouble is that the locks have barely been renovated in half a century. Without the repairs, he says, a barge carrying grain south is playing a game of Ukrainian roulette.

"They're usable now," he says. "But the shape of them is very bad. We can expect accidents anytime."





It's not just a question of danger, but of convenience. It can take hours for a unit of grain barges to pass one of the locks. Even Ukraine's pitted highways might be better. As a result, the river is ignored as a transportation artery. Today, says Dovhan, the Dnipro river carries only 3 percent of Ukraine's grain exports—45 million tons in the 2016-2017 market year. Rivers carry about 5 percent of Ukraine's total grain exports, according to data from the Ukraine Grain Association. In Europe, the number is closer to 50 percent.

Investment and Construction

Repairing the Dnipro river locks would cost about 25 million euros, Dovhan estimates. The number approximates from the results of a 2016 study by the US Army Corps of Engineers. The list of necessary repairs is formidable. It includes million-dollar operations to dredge a reservoir, replace downstream gates, and overhaul old machinery.

Thankfully, Ukraine has found potential partners. In 2017, the European Commission gave EUR 5 million for lock repairs. This year, Ukraine will sign a loan for an

“They’re usable now,” he says. “But the shape of them is very bad. We can expect accidents anytime”

additional EUR 50 million from the European Investment Bank, dedicated to developing the Dnipro waterway. Of the money, EUR 20 million will go to the locks. The rest will be for dredging the river and repairing port infrastructure.

Then there’s been investment in private-sector initiatives to improve river logistics. The European Bank of Reconstruction and Development, or EBRD, has loaned over $100 million to Nibulon over the past several years, the most recent $50 million loan to increase its cargo transport on inland waterways by millions of tons a year.

Meanwhile, the International Finance Corporation and the European Investment Bank have together loaned Nibulon nearly $200 million. Nibulon isn’t involved in lock repair and renovation, says Vadaturskyy. That’s the job of the state. Instead, Nibulon has built four transshipment terminals, an elevator complex, and eight barges—vital infrastructure to get grain to sea.

Other partners offer expertise. The US Army Corps of Engineers authored a 175-page study on the locks.

The Dutch government has given technical aid for the Dnipro’s development through the Dnipro Development Initiative—a joint project with the Ministry, the EBRD, and the EIB.

Partly at sea level, Holland deals with water with dikes and canals. It has many experienced civil engineers. The EBRD loans represent a prime opportunity for any foreign infrastructure contractor, he says. Recognizing Dutch expertise, he adds: “Dutch companies will get priorities.”

Paying the Toll

Loans are encouraging, but repaying them another question. Dovhan says that barges that use the river locks should pay a fee—up to $500. It’s a fraction of the fee ships pay to use Ukraine’s seaports. His Ministry is lobbying for the Rada to pass a draft law to impose this user fee.

Nibulon’s Vadaturskyy argues that a user fee will kill commerce. The law is “the main threat to the full development of both cargo and passenger transportation along the Dnipro River,” he says. He asserts it will decrease the competitiveness

of Ukrainian exports. Now Nibulon uses the river for free. Dovhan says there are no other options. "We need to still maintain the locks, get them repaired," he says. "We're ready for compromise. But there must be money."

Ukraine's Mississippi?

There's no agreement on how much grain could be moved down the Dnipro to the Black Sea. Nibulon aims high. In the 2016-2017 market year, Nibulon moved about 2.1 million tons of grain down the Dnipro and Southern Buh rivers, says Vadaturskyy. Short term, without lock renovation, Nibulon's goal is to move 4 million tons of grain down Ukraine's waterways, he says. Long term?

"One hundred million tons of cargo can potentially be transported annually along the Dnipro river," Vadaturskyy, citing a figure equal to double Ukraine's forecast grain exports of 2020. Many experts don't share his optimism. While it's a low-carbon, efficient alternative to trucks and train wagons, many farms are too far from the Dnipro and its tributaries to find river transport economical.

Petro Melnyk, CEO of Agricom Group, says that the Dnipro is 800 km from most of his land. Logistics are a headache, but new river locks won't solve his problem. "It's an interesting question," he says of the proposal to renovate river transport. Mykola Gorbachov, head of the Ukrainian Grain Association, says he expects 10 percent of Ukraine's grain to go down the Dnipro in 2022—at most. Trains are here to stay.

At the Infrastructure Ministry, Dovhan sets his sights higher. "We hope that there'll be 20 to 30 million tons of grain going down the river," says Dovhan who has studied the river system that drains harvests from the American Midwest. "It's not about taking away [grain] from rail and trucks," he says, forecasting a steady growth in Ukraine's harvests. "It's just about adding a new possibility. I don't think we'll cut down rail traffic to 10 percent."

But a renovated lock system is essential as Ukraine becomes a world food power in the 2020s. Referring back to the US, he says: "The Dnipro could be our Mississippi. It once was."

"It's not about taking away [grain] from rail and trucks. It's just about adding a new possibility. I don't think we'll cut down rail traffic to 10 percent"

Investors Needed: Shift Ag from Volume to Value

By James Brooke

When it comes to volumes of food exports, Ukraine plays with the big kids: world's fourth-largest exporter of corn and world's sixth-largest exporter of wheat. But when it comes dollar value of food exports, Ukraine tumbles down the ladder to 24th place—between Russia and Turkey.

Helping Ukraine climb up the value ladder, from grain power to food power, is the challenge that preoccupies Olha Trofimtseva, Deputy Agricultural Policy and Food Minister of Ukraine for European integration.

Food Processing Adds Value

Although the country saw a healthy 37-percent jump in its food sales to the EU in 2017, Trofimtseva is not satisfied. "We want to attract more European companies to Ukraine to create joint ventures for production and processing," Trofimtseva said,

> We want to attract more European companies to Ukraine to create joint ventures for production and processing

painting a path to add value to Ukraine's agriculture in the 2020s.

With almost all of Ukraine's arable land under cultivation and its population stable, she says export growth will come from higher productivity and investments in food processing. In particular, says Trofimsteva, who comes from a farming background in Sumy, foreign investors can help Ukraine add value in: organic food; meat processing; wheat flour, beef, semi-processed meat products; and processing of fruits and berries into jams, juices, and purees for infants.

"Ukraine exports to EU are still

> We need to change the model of our economy— from the raw material type to the creation of added value within the country

dominated by raw commodities, with the exception of sunflower oil," she said in an interview in the Agriculture Ministry. Support for food processing comes from the top. Prime Minister Volodymyr Groysman recently lectured his Cabinet about agriculture: "We need to change the model of our economy—from the raw material type to the creation of added value within the country."

Global Mega Trends Touch Ukraine's Fields

While some foreigners see Ukraine's rural landscapes as timeless, Trofimtseva sees large, hidden forces at work. Just as agricultural exports turned on a dime after Russia closed

> In Asian and African countries—the fast-growing middle class wants more dairy, more meat products, the EU and the US will want vegetarian and organic products.

its market to Ukrainian produce, Ukraine's farm sector is adapting to world food 'mega trends.'

"In the regions with growing populations—Asian countries and African countries—the fast-growing middle class wants more dairy, more meat products," she said of one trend. "In the other direction, the EU and the US will want vegetarian and organic production." Milk cows and beef cattle represent a step up the value chain— products more valuable than the raw inputs, grain and hay.

Upgrade Farm Workers

Food processing isn't just about adding value—it also means adjusting to the needs of the workforce. Ukraine's vast rural expanses are emptier than usual. In addition to urbanization, there is a flow of farm workers to Poland, where they can earn three to four times their wages in Ukraine.

"When you talk to the larger ag companies in Ukraine, you hear the

Left: Olha Trofimtseva, Deputy Agricultural Policy and Food Minister of Ukraine for European Integration. (supplied)

> Modern Ukraine is shifting to the Western model of better-trained, better-paid farm workers working with more sophisticated machinery

same complaint: it is very hard to find qualified middle level workers," Trofimtseva recounts. "This problem will get bigger." This is another argument in favor of adding value by processing commodities inside Ukraine. Processors earn.

The Ukraine operation of Lactalis, the French multinational dairy products corporation, gives one example. It produces more milk—with one third of the workforce of a decade ago. And that workforce is better paid. In the Soviet days, the government assigned people to jobs and restricted their movement. Modern Ukraine is shifting to the Western model of better-trained, better-paid farm workers working with more sophisticated machinery.

"We don't need 18 agricultural universities in Ukraine, we need agricultural colleges producing veterinarians, agro technicians, agronomists," said Trofimtseva, referring to the legacy of the Soviet educational system. Ukraine is trying out a German agricultural education system, alternating classroom days with apprenticeship days. The goal? Students will have "not just theoretical, but a strong practical basis."

A Private Land Market? Not Soon

Another megatrend that is hard to quantify is the feeling that Ukraine's climate is getting warmer and dryer. This may necessitate shifting crops and irrigating southeastern regions, notably Mykolaiv, Kherson and Zaporizhia.

While foreign investors can put money into food-processing factories, land is another story. One of the thorniest issues in Ukraine: the still-existing moratorium on the sale of the country's private farmland. There's little incentive for investors to fund irrigation if they can't own their land. With presidential and parliamentary elections in 2019, Trofimtseva does not see the moratorium on the land market ending soon.

> We will use 2018 for technical issues— preparing the land cadaster, preparing rules connected to cadaster, conducting the proper social discussion

> It will be possible that, in 15 years, Ukraine will be among the world's top five ag exporters

Instead, she says, "we will use 2018 for technical issues— preparing the land cadaster, preparing rules connected to cadaster, conducting the proper social discussion." Trofimtseva says farmers' views toward a land market are evolving. But she was surprised on a recent visit to Sumy National Agrarian University.

"A lot of hands were raised against land reform," she said, referring to student opposition to creating a free market for farmland in Ukraine. "They could not explain their reasons. They just got their reasons from populist deputies on TV." While Ukraine's path toward a modern, Western-style agricultural economy may look like a zigzag, Trofimtseva is confident that the overall trend line is upward.

Looking forward, to the 2030s, she said: "If we keep on track with ag tech, developing efficient agricultural production with proper financing, it will be possible that, in 15 years, Ukraine will be among the world's top five ag exporters." Foreseeing a steady shift toward value, she was talking in terms of dollars.

State Railroad Invests to Get Grain to Ports

by James Brooke

Between Ukraine's state-of-the-art privately owned grain silos and Ukraine's state-of-the-art privately owned grain terminals, stands Ukrainian Railways. It is not state-of-the-art. It is state-owned. Once the pride of Brezhnev's Soviet Union, Ukraine's railroad is now the bane of private farmers. Hostage to the creaking rail monopoly, they struggle to meet export contract deadlines, always one step ahead of Mother Nature.

"Corn is a critical crop—you have to dry it immediately in 24 hours," says Michael Bertram, Ukraine director of NCH Capital Inc., a New York-based venture capital firm that invests in 50 farms in Ukraine. "If your elevator is full because the train did not come to take your earlier crop, you have real problems." Farmers and railroaders are at odds the world over.

Shortages and bottlenecks

In Ukraine, state control means a bottleneck. Ukrzaliznytsia, or

"If your elevator is full because the train did not come to take your earlier crop, you have real problems"

Ukrainian Railways, carries 82 percent of Ukraine's cargo. It's a heavy load. In terms of cargo volumes, Ukraine's railroad ranks fourth in Eurasia—after the railways of China, Russia and India.

For many farmers, there aren't alternatives. Trucking is only economical if a farm is less than 200 km from a Black Sea port. River transportation only works if a farm is less than 100 km from a river

port. This monopoly situation can empower lower-level rail managers to pinch the hose and create artificial shortages. "They have a big problem with asset utilization. There is no incentive," Bertram says, choosing his words diplomatically. "Some people have an interest in a deficit."

Yevgen Kravtsov, acting CEO of Ukrainian Railways, recognizes the problem. As head of Ukraine's largest employer, he oversees 400,000 workers. "In a number of regions, local management—not only in the railways—people on lower levels make problems to resolve them with bribes," he said in an interview.

Replacing and Repairing

Kravtsov, who worked for seven years in Kyiv with the law firm Asters, was brought in last summer as part of the solution. He entered 2017's peak harvest season with 20 percent of the railroad's 300 diesel locomotives sidelined for repairs. He immediately launched an emergency repair program.

Then in February, he signed a $1 billion deal with General Electric Transportation to replace or repair Ukraine's entire diesel locomotive fleet over the next decade. Diesel traction is key to moving Ukraine's grain. About half of Ukraine's 22,000 kilometers of track is electrified. But many of its farms are on the lesser used other half, necessitating diesel-powered locomotives.

For the 2018 peak harvest season, Kravtsov is negotiating to temporarily import idle locomotives from the Baltic nations, about 1,000 km to the north. They have extra locomotives due to dwindling trade with Russia. Ukraine's Cabinet of Ministers is on his side. In February, they approved a $1 billion capital spending program for the railroad, the biggest in a decade. The plan calls not only for

"In February, they approved a $1 billion capital spending program for the railroad, the biggest in a decade"

new locomotives, but 9,000 new freight cars. Meanwhile, 10,000 cars will be renovated, and 10,000 sold for scrap. New hopper wagons, key to moving grain, are only to be acquired next year. About one third of the new

cars will be financed by loans from European Bank for Reconstruction and Development.

Ambitious budget, little trust

At the same time, the railway operator may try to raise as much as $1 billion on international debt markets this year to refinance its dollar-denominated debt and replace rolling stock and train equipment, Kravtsov tells Bloomberg. Some are worried about the new budget being put to good use. “We remain skeptical about the company’s ability to meet its CapEx plan for the year,” writes Alexander Paraschiy, head of research for Concorde Capital investment bank.

He remarks that the company has never spent this much, and its less-ambitious plan for 2017 was only partially fulfilled. Kyiv traders and executives complain that there’s not always transparency behind Ukrzaliznytsia’s budget allocations and charges. In the countryside, farmers are happy to hear that investment is finally flowing to the cash-starved company.

But they are not about to lay off their in-house welding teams that repair Ukrainian Railways grain cars that roll up to their elevators. The market isn’t trustful. Almost weekly, there is news of an agribusiness or industrial company buying their own cars for use on state tracks. Metinvest, Ukraine’s largest steelmaker, is buying 1,800 rail cars. Industrial and Construction Group will buy 360 wagons to move gravel from their quarries. And, of the national fleet of 18,000 grain wagons, only about two-thirds are owned by the state railroad.

“We have 300 grain cars, but we need 800 total for the November-December peak period,” said Bertram, of NCH. “We told the railroad we will buy locomotives. We buy, and you operate them. They say that is not allowed by Ukrainian law.”

Changing Grain Map

In another challenge to the railroad, the nation’s grain map is changing. Production is falling in the arid regions near the Black Sea and expanding in the west, growing in such regions as Lutsk and Ternopil. “Some regions that were not historically producing grain have significantly increased grain production,” Kravtsov says. “We do not have efficient rail infrastructure to meet the requirements.”

> We know the forecasts of the agricultural sector reaching 100 million tons of grain to be produced by 2022

Looking ahead, this railroad executive realizes he is in a race against time. Productivity increases in Ukraine’s farming country means the national grain harvest could increase by 50 percent in five years. With no population growth expected, this excess will have to be moved to the Black Sea ports for export. “We know the forecasts of the agricultural sector reaching 100 million tons of grain to be produced by 2022,” says Kravtsov.

Looking at his present rolling stock of grain wagons, he predicts: “We will have a demand over the next four years for 6,000 more grain hoppers—or more.”

1. Ukraine's grain belt moving north as the effects of global warming bite

2. Ukraines extensive rail network currently being modernised and electrified

3. Ukraine's dated road network now being upgraded to European standards

4. Ukraines arterial river network being upgraded to ease the road and rail congestion

China Invests Billions to Modernize Ukraine's Ports and Highways

by James Brooke

The new Cofco sea port facilities in Yuzhny loading ever larger Panamax ship (Nibulon)

Ukraine's farmer has a friend in China. To guarantee future food supplies for its hungry population, China is investing billions of dollars to upgrade Ukraine's ports and highways. This transportation infrastructure has been starved of investment since the collapse of the Soviet Union. 2019 is officially Ukraine's 'Year of China.' But projects underway this year will have an impact for decades.

China's long game

China sees transportation infrastructure in Ukraine as a two-way street. On the import side, it wants ironclad guarantees that it will be able import the food necessary to feed their population of 1.4 billion in 2030. On the export side, it wants to use Ukraine, with its free-trade pact with the EU, as a transportation route for Chinese goods to Europe's $17 trillion economy.

Chinese goods passing through Ukraine are still subject to existing EU quotas and tariffs. However, Ukraine's free trade agreement with EU makes for faster processing and information exchange. The EU is China's top export market, larger than the US.

Both initiatives are related to China's flagship 21st-century infrastructure project, the Belt and Road initiative, a myriad of land and sea links between China, Europe, South Asia, and the Middle East. For Ukrainian farmers, efficient Black Sea ports and highways translate into lower shipping costs and more competitive products on world food markets.

Improve Highways

From a food trader's point of view, transportation transformation starts inland, near the farm gate. Individual Chinese state-controlled company highway contracts paint a larger picture of China's vision: commitment to cutting highway bottlenecks. Starting this spring, Chinese companies will begin building multi-lane bypasses around Zhytomyr, Poltava, and, eventually, Kyiv. Total road work is valued at $340 million.

To drain grain from Poltava, China Road and Bridge Company is to build a new $330 million bridge over the Dnipro at Kremenchuk. The four-lane bridge outside of the city will be an alternative to the frequently clogged two-lane bridge through its center, allowing trucks to cross the Dnipro without delays.

Near the Black Sea coast, China Road and Bridge is building a 'betonka.'

This all-cement, 135 km four-lane highway will connect the ports of Odesa and Mykolaiv. It is made to take the pounding of trucks loaded with 24 tons of grain. In 2020, this $160 million highway may be extended 70 km east to Kherson port. Victor Dovhan, Ukraine's Deputy Infrastructure Minister on European Integration, would like to see it stretch the length of Ukraine's sea coast, connecting all ports from Mariupol in the east to Chornomorsk in the west.

Highways aren't China's only onshore focus. The railroad is the nation's logistics bottleneck. State-owned Ukrainian Railways is so short of locomotives that it may rent some from the Baltics this fall. Here, China might help. "Chinese are investing in electric locomotives," Dovhan said in an interview. "We asked them to send a testing locomotive from Belarus."

Yuzhny Port can now handle Panamax Cargo Ships

At Ukraine's busiest port—Yuzhny, just east of Odesa, China Harbor Engineering Company has been hard at work. The world's second-largest dredging company has dredged the port's access channel to the 16-meter depths needed to handle New Panamax ships. These large cargo ships have deadweight tonnage of 120,000 tons. By the end of next year, China Harbor is to dredge another approach channel and three berths at Yuzhny to Panamax depths.

The dredging is part of a $150 million, Cargill-led project to build a 5 million ton grain terminal at Yuzhny. This project alone will increase Ukraine's grain export capacity by 15 percent, or about 6 million tons per year. "The successful implementation of this project will not only boost the capacity of the Yuzhny seaport, but also support the development of Ukraine's agriculture," Du Wei, China's Ambassador to Ukraine, said at a recent event marking the completion of the $40 million first phase of dredging.

West of Odesa, China Harbor now is bidding to dredge the port of Chornomorsk. Later this year, the company is expected to bid on a separate Chornomorsk tender. This will be to build an estimated $50 million ferry rail truck terminal at the Black Sea port that has ferry lines to Bulgaria, Georgia, Romania and Turkey. This terminal would make viable a non-Russian thread to China's east-west Belt and Road Initiative—a China-Central Asia-Azerbaijan-Georgia-Ukraine route.

"On the import side China, it wants ironclad guarantees that it will be able import the food necessary to feed their population of 1.4 billion in 2030. On the export side, it wants to use Ukraine, with its free-trade pact with the EU, as a transportation route for Chinese goods to Europe's $17 trillion economy"

In a third dredging project, China Harbor is looking at dredging the Bug-Lyman-Dnipro channel. This 80-km channel guarantees Black Sea shipping access to Mykolaiv and Kherson ports.

Freight trains from Central China through Ukraine

Back on land, Beijing's 21st-century infrastructure push to connect with Europe and Central Asia means that Ukraine can once again play its age-old role as gate to Europe. In early 2018, China started running freight trains central China to Europe, via Central Asia, Russia and Ukraine. Since China does not want the freight trains to return empty, China has quietly won an exemption from Russia's restrictions on transit of Ukrainian goods through Russia to Central Asia.

Indeed, China may be following the strategy it has followed over the last decade in Central Asia. There, working in Moscow's traditional sphere of influence, China has built billions of dollars of east-west highways, railways, gas lines and pipelines—all without getting drawn into a fight with its 'strategic partner,' Russia. "Chinese activity in Ukraine appears not to antagonize Russia," Marcin Przychodniak, writes in a recent essay for the Polish Institute of International Affairs. "China wants to profit economically, but also to strengthen its political position in Eastern Europe, which in turn will be used in its relations with Russia, EU and US"

Dovhan, of the Infrastructure Ministry, says Chinese companies are motivated by contracts, often financed by low interest Chinese state loans. "The rationale is to make money—not about politics," asserts Dovhan, who traveled to Beijing in May 2017 with a high-level delegation representing Ukraine at a Belt and Road conference. "They want to enter Ukraine, a market that has great potential."

Some of this potential is to use Ukraine as a transit nation for Chinese goods into Europe. When the Ukrainian Danube Shipping Company comes up for privatization, a Chinese bid is expected. Control of this company would send Chinese goods on 'Ukrainian' barges from the Black Sea into southern Germany.

Farmers Will Balance Trade with China

At present, China-Ukraine trade is heavily weighted in China's favor. Last year, it grew by 18 percent to $7.8 billion. But Chinese exports to Ukraine accounted for about two thirds of this total. Agricultural exports are the key to righting the trade balance. Ukraine is the largest supplier of corn to China, and it is winning approval to supply more and more the country's food imports. Last year, China approved the import from Ukraine of about 100 new agricultural items.

"There is greater access to the Chinese market for Ukrainian food exports—corn, milk and milk products, frozen beef, sunflower oil, sunflower cake, dried beet pulp," says Serhiy Koshovyi, chairman of the board of Ukrainian Association of Sinologists. "Also under consideration are obtaining certificates for perspective Ukrainian products, such as chicken meat, confectionary, juices, liquors and fresh fruits."

"We have... an extremely large potential for expanding the range of products traded between our countries," Olha Trofimetseva, Ukraine's deputy agricultural minister, said February at the Import Expo announcement ceremony in Kyiv. As trade ties are negotiated, China is investing to speed Ukraine's farm products to market, by road, sea and eventually rail.

“Chinese activity in Ukraine appears not to antagonize Russia. China wants to profit economically, but also to strengthen its political position in Eastern Europe, which in turn will be used in its relations with Russia, EU and US”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Ukraine Becomes Poultry Power

by Jack Laurenson and Natalya Datskevych

As global demand for chicken meat rises, Ukraine's poultry export industry has taken flight. Over the past three years, the country has become a global leader in exporting chicken meat. In Europe, Ukraine has risen to fourth place as a net exporter of poultry products. Worldwide, Ukraine is close behind the US, Brazil and Thailand as a major international exporter of chicken meat.

But the biggest leap is yet to come. By the early 2020s, the Food and Agriculture Organization of the United Nations (FAO) expects that Ukraine's chicken meat exports will surpass Thailand's—now over 770,000 tons. That's about three times Ukraine's current exports, which in 2016 surpassed 215,000 tons, according to USDA data.

Big Chicken

Agricultural economist Andriy Yarmak attributes the sharp rise to efficient producers. "Ukraine's growth in poultry exports has been very consistent over the past ten years," he says. "We can thank a very high level of efficiency from leading producers here. They have integrated production across the board. Their production costs are lower than anywhere else in the world."

Ukraine's most successful producers have scale on their side. Data from the Poultry Union of Ukraine says the top 20 producers take 95 percent of Ukraine's poultry market. The holding Myronivsky Hliboproduct, or MHP, controls an 80 percent market share, both domestic and export. It's clawed its way up from 61 percent of the market in 2015. "Our company produced over 570,000 tons of chicken in 2017, with 220,000 tons being sent for export," MHP chairman Yuriy Melnyk said in an interview.

Analysts valued MHP's 2017 exports at near $300 million. Melnyk says that with the construction of new factories, the holding plans to nearly double their current production capacity—to 900,000 tons annually by 2023.

Income and Investment

Strong chicken prices worldwide have attracted both steady foreign investment and state subsidies to Ukraine's poultry industry. Incomes have grown faster than even production. According to the State Fiscal Service, a record 212,000 tons of chicken meat were exported through September 2017, almost 20 percent more than during the same period in 2016.

The income increase was greater. Exports in that period were valued at $295 million, 38 percent more than 2016. Companies like MHP and Ovostar Union, one of Ukraine's largest producers of chicken eggs, say their policies of re-investment are vital to success.

Executives push the company to use revenues to modernize and expand production bases. Ovostar's reconstructed poultry farm outside of Kyiv has large new chicken houses and feed mills, as well as modernized egg processing facilities that allowed the company to meet strict EU standards. MHP say they've spent years diversifying within the agricultural sector. On their 370,000 hectares of land they also produce grain, soy and sunflower products, which feed their birds and provide additional exports.

Analysts have a more sober evaluation of these giants' success. Andriy Perederey, of Concorde Capital—a leading investment bank in Kyiv—says it mostly comes from a rise in global chicken prices."In both local currency and USD, that's the key driver of their improved bottom line in 2017. We can expect that MHP will continue to have an edge in its poultry segment, but their farming segment shows weaker results."

Quality exports and high revenues

A significant destination for Ukrainian chicken meat is the Middle East. Strict Halal certification standards in Ukraine allow the country to make inroads into Middle Eastern and North African markets. About 40 percent of Ukrainian chicken goes to this region, with Iraq standing out as a particularly hungry customer.

Exports to the EU—especially the Netherlands and Germany—also are

steadily increasing. They're expected to take a bigger portion as new export licenses come into effect this year. Ukrainian farmers assert the quality of their meat and eggs has helped them break into a fiercely competitive global marketplace.

"In September last year, we received the official license to begin exporting our chicken eggs to the European Union, and they have been graded «A» class by inspectors," said Alla Goloborodko, brand manager, at Ovostar. In Ukraine, domestically produced eggs and chicken meat enjoy a good reputation for quality and taste. Chicken Kyiv—tender breast prepared with garlic butter and breadcrumbs—is one of the country's most famous dishes.

Challenges ahead

While strong prices make for a positive picture for poultry and egg exports, the sector is vulnerable. Bad weather conditions last year depressed grain harvests, which affected poultry and egg farmers. Company executives cite Ukraine's ban on farmland sales as an obstacle to growth.

MHP is unlikely to expand farming and production operations while the ban on selling farmland remains in place, says Yuriy Kosyuk, the company's CEO . "Given the present level of grain prices, the cost of leasing land, and the headaches associated with extending lease agreements, it's very expensive to expand the areas in which we farm," said Kosyuk in an interview.

Instead, for 2018, MHP have set their eyes on buying new properties and land in Poland and elsewhere.

> "The top 20 producers take 95 percent of Ukraine's poultry market"

Right: Yuriy Melnyk, Chairman of MHP agroholding and chicken producer (MHP).
Below: MHP's chicken hothouses.

Farming in Ukraine: More Co-ops Ahead?

by Jack Laurenson

An economic backbone of rural America, farming cooperatives would boost rural incomes, quality of life and family farms in Ukraine, say experts here. By harnessing from strength in numbers, 'ag co-ops' already have boosted revenues for Ukrainian farmers who have tried them, including rural milk producers and fruit growers near Kyiv. But as small farmers come around to the idea, old laws hinder efforts to properly organize co-ops.

Co-ops Succeed Elsewhere

Globally, farming cooperatively is a successful model. There are estimated to be over 2 million co-ops, providing employment for 250 million workers.

"On paper, there are thousands of agricultural cooperatives here in Ukraine," says Andriy Yarmak, an economist for the Food and Agriculture Organization of the United Nations, or FAO. "But there are no cooperatives here that are functioning properly, because of a lack of legislation that protects them and enables them to be proper commercial enterprises."

Farm co-ops are defined by regulators as social enterprises, mostly for marketing reasons. Ukrainian co-op leaders say they find it almost impossible to win legal recognition as commercial enterprises. Instead, to produce and trade, they are required by law to partner with a state-registered business. The FAO is working with Ukraine and the European Bank for Reconstruction and Development, or EBRD, to change this.

Rada Sits on Co-op Draft Law

Proposed legislation would establish agriculture cooperatives as legally defined entities. It would allow co-ops to produce, process and trade goods on their own. "It took us four years, but in 2017 we submitted a very modern cooperative legislation proposal, supported by the Agriculture Ministry, to parliament here," says Yarmak. "But there is a lot of resistance."

"On paper, there are thousands of agricultural cooperatives here in Ukraine. But there are no cooperatives here that are functioning properly"

Foreign experts are divided on why Ukrainian lawmakers hesitate to approve laws that would enable co-ops. Some suspect that the legislation is too western for some "Soviet-minded" public servants. Others suggest that Ukrainian politicians fear cooperatives could use loopholes to avoid tax. As it stands now, co-ops pay more in tax than large holdings. "The current system is very dysfunctional and difficult for cooperatives," says Yarmak. "They are often paying taxes twice: first as farmers and then again as a company."

Farmers Benefit from Co-ops

While politicians debate, farmers unite for profit. The Ukrainian Agrarian Cooperative says it succeeded in uniting small and medium-scale commercial farmers into an alliance, resulting in a boost to all incomes. Now it trades 500,000 tons of grain annually, making the co-op a major market player.

One dairy co-op, the Association of Milk Producers, has partnered with Ternopil Dairy Factory, which sells milk under the popular Molokiya brand. The co-op credits this partnership with raising its farmer member incomes by 25 percent. Yarmak who advised this partnership, says a co-op can be valuable as a social enterprise—but bottom line is a matter of profit. He leads the FAO's co-op development project in Ukraine. "A cooperative should help its members make more money," he says. "They're an important part of dynamically developing Ukraine's commercial agriculture."

Kyiv Region Co-op Sells Fruit to EU

Dimitry Zubakha, CEO of the Kyivski

fruit farming cooperative, says that all members of his co-op have seen real increases in their income since they formed their association. Farmers from this co-op harvest for the Small Fruits company, which then handles the sales and exports of the produce. Kyivski collects 20 percent of the farmers' profits, and invests it into next season's harvest.

Some of the money is also put toward training and helping with organic certification, vital for the EU market. "Our cooperative of small-scale berry farmers now has 60 farms in total, mostly in the Kyiv region," he says. "Our yields and incomes are all increasing and next year we expect to export 500 tons of frozen fruit, 99 percent of which is going to the European Union."

Zubakha says it was hard to get Ukrainian farmers on board with the project at first. Memories of their Soviet past led to skepticism about communal work. But the benefits—social and financial—have been clear. "Cooperative farming helps to evolve local societies and communities," he says. "It inducts communities into the business process... while also boosting incomes and providing a structure of support and security for the farmers."

Farmers of the Kyivski cooperative make decisions based on consensus. Clients in Europe advise the cooperative on what to farm that year, but all farms agree what they will grow in the next season. For Kyivski, raspberries and strawberries are in high demand. Ukraine is the world's fourth largest exporter of raspberries, with annual export yields having increased from 20,000 tons in 2014, to over 60,000 tons in 2017. Producing and exporting this much would be impossible without coming together into cooperatives, farmers say.

"We've found that for getting the best long-term results, bringing small-scale farmers together and forming co-ops is the only thing that works," says Zubakha. "It's the best hope we have of tapping into Ukraine's remaining potential for production and export of quality, organic produce."

> "The current system is very dysfunctional and difficult for cooperatives. They are often paying taxes twice: first as farmers and then again as a company"

Ukrainian Dairy: Big Dreams, Dwindling Cows

by Aisha Down

From the outside, it's an idyllic scene. A small house in a country village, equipped with an industrial-sized refrigerator, fills with chatter and activity as, every morning, residents bring liters of milk for collection. Some 73 percent of Ukraine's annual 10.3 million tons of milk comes from such sources—private individuals with a few dairy cows, often deep in the countryside.

Fresh from the cow, the milk is either collected by processors, sold on the market, or consumed locally. The share that's processed goes to ever-hungrier export markets. The Middle East and North Africa are the most important.

But, exports aside, the reality of Ukraine's dairy is less than idyllic. The country's rural population is steadily aging. Its dairy herd is dwindling. Cow owners die or grow unable to keep milking their animals. Couple that with legislative and logistical obstacles to setting up larger-scale dairy farms and Ukraine could become a net milk importer in a decade.

Villagers' Milk

Villagers' milk is a touchy subject. It's not just a market percentage to be reckoned with. It's an income and a traditional livelihood for a large population. It can be unsanitary—kept at the wrong temperatures, milked the wrong way, swarming with bacteria. Ukraine's government, eyeing the robust EU market, is trying to clean up its milk and woo customers.

But some attempts have blown up in its face. Jan. 1 was the deadline for new state standards to no longer accept second-grade milk (a category defined by bacteria count). But a public outcry left Prime Minister Volodymyr Groysman backtracking. Villagers feared milk processors would no longer be allowed to buy their goods. (To be clear, not all village-made milk is second-grade.)

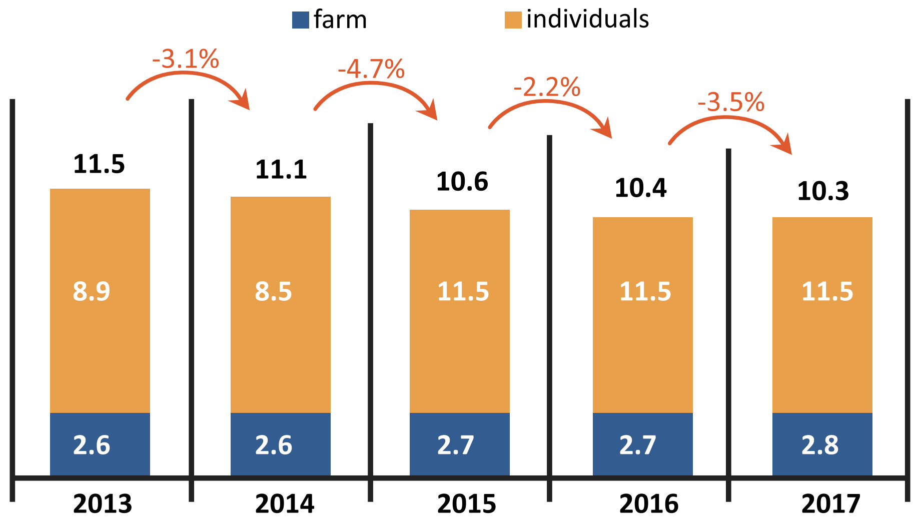
Groysman offered reassurances that no such rules would be made. At least, not now. "I warn: there should be no such prohibitions," he told state media. "It is necessary to help people in such a difficult time."

Declining Population

Parliament finds it hard take villagers' milk off the market. But, population decline inevitably will—and soon, according to Renato Ruszczyk, president of Ukraine's branch of French milk giant Lactalis. Ruszczyk's company, Lactalis, uses some villagers' milk—pasteurizing it and processing it to make a line of desserts, smetana and traditional cheeses under a few of its brands.

It maintains 160 collection points in Ukraine, says Ruszczyk, with some 5,000 villagers. The population at these collection points diminishes

> “If you look at the next 10 years, the quantity of delivered milk will grow”



at 5 percent a year, says Ruszczyk. This is why Ukraine risks being a net importer. “There’s a decline of people: they are dying,” he reflects. “The young people raised in the villages want to go to the big towns. The new generation is not attached to the land.” Data from Ukraine’s State Statistics Service shows the national herd decreased by 5.2 percent last year, to 3.69 million head.

Farms and Processors

Not everyone agrees that the decline in rural population will seriously affect Ukraine’s dairy industry. Maks Fasteyev, a senior dairy market analyst and a former employee of Danone, points out that, although individuals are Ukraine’s main milk producers, their milk isn’t the main source for the country’s processing industry.

Data from Lactalis estimates that private producers sell only about 1.23 million tons—16 percent of their production—to milk processors. The rest is sold on open-air markets, or consumed at home. Meanwhile, larger farms, less than 30 percent of the country’s total milk production, send some 2.6 million tons to dairy plants. It’s a growing number. In 2013, it was less than 2.3 million tons.

Fasteyev says this increase in farm-produced milk will compensate for population decline. “Farm milk is now 60 to 70 percent of milk delivered to processing plants—only 30 to 40 percent is milk from the private sector,” he calculates. “If you look at the next 10 years, the quantity of delivered milk will grow.”

Ruszczyk disagrees. Better feeding has caused the uptick in farm milk production, he says. But that will flatten out. “The farms are improving in Ukraine in terms of productivity,” he agrees. “Every year they keep more or less the same number of animals, but each year they produce 1, 2, 3 percent more... But they will stabilize. You need more farms.”

Fearful Investors

Building more farms, however, is a hard sell with Ukraine’s thorny moratorium on the sale of land. “To invest in a farm, you need a minimum of $7 to $15 million,” says Ruszczyk. “This is the capital investment in the housing, animals. How can you put this money if you don’t have the land?”

“I personally brought a lot of investors, from Germany, from Holland, from New Zealand,” he recalls. “When they cannot buy the land, they just walk away.” The land moratorium might be a deal breaker for foreign investors, but Fasteyev says it isn’t that bad. A lot of farmers are Ukrainians—and they aren’t afraid to put money into their farms.

“When the price of raw milk grew, several months ago, farmers got more money, and they started to invest,” he recounts. “They bought more cows.” Fasteyev might be right. But as it stands, the growth of farm milk production isn’t compensating the declining population. He projects a decrease of 50,000 tons of production for 2017, compared to 2016.

Exports Diversify Radically From Russia

Domestic debate aside, Ukraine’s dairy exports are a source of optimism. Cheese exports topped 63,000 tons last year, up 63 percent from 2016. Fasteyev notes that Ukraine is now the world’s 5th greatest exporter of butter, after the EU, Belarus, the US, and New Zealand.

It’s good progress for a nation that used to depend on one easy market: Russia. Fasteyev says the future is diversification. “We will not concentrate on one market,” he says looking ahead. Remembering the shock of Russia’s ban of Ukrainian milk, he says: “Our experience with Russia has become a bad one. We have learned to concentrate on many places.”

Above Ukraine’s declining total milk production (infoagro)

Adventures in Aquaculture: Ukraine's Black Sea Dream

by Jack Laurenson
and Antonina Tsymbaliuk

Andre Pigulevsky wants to export one billion Black Sea oysters over 100,000 tons of the salt-water mollusc-annually, within 10 years. It is an ambitious goal for his small business. But, considering he has single-handedly resurrected Ukrainian oyster farming, supporters are confident in his mission.

Until recently, Black Sea oysters were practically extinct. Aquaculture farms trying to reintroduce and cultivate them were largely failing. The broader picture for Ukrainian aquaculture and seafood is one of gradual but difficult recovery. The Russian annexation of the Crimean peninsula in 2014 nearly killed Ukraine's coastal seafood production. Twenty years ago, Ukraine was a major player in Black Sea fishing and aquaculture. Annual yields exceeded 400,000 tons. That plunged to a mere 90,000 tons last year.

But small-scale farms – like Pigulevsky's company, Skifian Oysters – are starting to turn that around. They currently ship four million oysters per year. Over the last five years, the company's revenues have grown by 35 percent annually.

An oyster rebirth

Pigulevsky's Black Sea farm is in a secret bay near Kherson, 100 km northwest of Russia-occupied Crimea. It produces a delicate and sweet-tasting oyster that has become the darling of restaurants in Kyiv, Kharkiv, Lviv and Odesa. Foreign exports are modest. But they're expected to increase significantly in the next few years. Meanwhile, Skifian Oysters is dominating a domestic market that is fast acquiring a taste for sweet oyster meat.

''The popularity of oysters has really exploded here in recent years,'' the owner of an up-scale Italian restaurant from Kharkiv, visiting a seafood wholesaler in Kyiv. ''And they have also become more affordable too,'' she says, inspecting shellfish and molluscs from France, Japan and the Netherlands, alongside oysters from Skifian's Black Sea farm.

She opts for a large batch of the Ukrainian oysters, to be prepared, chilled and delivered to her restaurant. Speaking from experience, she says: ''They're small, delicate and have a lovely taste. They're very popular with our customers.'' The Black Sea oyster-called mushlya fina, or ''fine seashell'' by Skifian – also doesn't break the bank. Historically seen as a food for the wealthy, Pigulevsky remembers that only a few years ago imported oysters could only be found in Kyiv's poshest eateries. They would cost up to $7 each.

Now, they can be ordered on ice, with lemon juice and Worcestershire sauce, for as little as $2 each. In supermarkets like Le Silpo and Novus, they can be found for as little as $1.50 on a good day. "It's taken a long time to get where we are now," says Pigulevsky, who has been developing small-scale oyster farming and wholesale since a decade ago, when he discovered his passion for oysters when traveling in France. "We are starting to see the real untapped potential of Ukraine's Black Sea coast. We seriously believe the region has the capacity to export one billion oysters per year."

Ukraine develops a taste for seafood

Seafood consumption has sky-rocketed in Ukraine, a country traditionally associated with beef and pork. To make up for losses in domestic production, companies here import 320,000 tons of seafood a year, according to official

Fresh oysters from the Black Sea Oysters farmed in nets sacks in quiet bays around the coast

> Ukraine's coast presents a lot of unused potential. Lots of people are looking into this right now

statistics. Norway leads the exporters. But Ukraine also imports seafood from 60 other countries.

During the summer, popular Black Sea beaches are jammed with vendors selling local fish and mussels, usually pickled in vinegar and spices. Restaurants often feature oysters on the menu. But only a handful of aquaculture farms operate on the Black Sea coast. Experts say this will be a real growth area in the future. They predict a Black Sea gold rush. ''Ukraine's coast presents a lot of unused potential,'' says Andriy Yarmak, an economist for the Food and Agriculture Organization of the United Nations, or FAO. ''Lots of people are looking into this right now,'' says Yarmak, noting that Ukraine's 1,000 km long Black Sea coast presents opportunities for foreign investors. With sights set on China as a growth market, Pigulevsky is rapidly increasing production of his oysters.

The golden age of Black Sea oysters

Until the Bolshevik revolution, Ukraine's Black Sea coast was the world'sbiggest exporter of wild oysters. Many went to the restaurant tables of Europe, where they were appreciated for their delicate and not too salty taste. But political upheavals resulted in shifts in culinary habits and changes in agricultural priorities. This caused the near collapse of Ukraine's aquaculture.

In 1947, a final nail was hammered into the coffin. Ships returning from Asian waters after the Second World War brought with to the Black Sea a voracious, predatory species of mollusc that decimated populations of wild mussels and clams. "Our indigenous oysters were practically pushed to extinction," says Pigulevsky. "This predator absolutely ate everything along the Black Sea coast."

Soviet neglect did little to help Black Sea farmers and fishermen. The industry and a way of life entered into a steep decline. According to experts, now is the right time for a comeback for Ukraine's coastal aquaculture.

"The Black Sea, due to its unique physical and geographical characteristics, is very promising region for the development of aquaculture, especially the farming of mussels, oysters and other molluscs," says Pavel Kutischev, professor of marine resources at Kherson State University. "In fact, our marine areas-especially the protected gulfs and coastal bays of the sea-offer one of the best locations available in the world right now for the cultivation of different molluscs, in particular oysters," Kutischev maintains.

Nutritious black mud and clean, food-filled water results in a fast growth rate for seafood here. The sea's many secluded bays and tranquil water inlets with modest levels of salinity are becoming havens for oyster farmers.

Black Sea opportunity

"The Black Sea coast of Ukraine is still a hugely under-valued asset with so much potential," says Pigulevsky. "It's also an extraordinary opportunity for investment, for risk-taking, patient investors." Producing oysters takes time. In the Black Sea takes months to grow to an edible size.

"Our oysters here take 16-months to reach the right size," says Pigulevsky. "The same one, farmed in Ireland or France, can take almost 3-years to reach the same size." Pigulevsky plans to expand his farm so it occupies the entire bay. Other farmers are bringing their seafood cages from the open water into the protected, tranquil bays. With China emerging as a hungry new client, Ukrainian seafood once again will return to the menus of the world.

> Our indigenous oysters were practically pushed to extinction," says Pigulevsky. "This predator absolutely ate everything along the Black Sea coast

Food Processing Adds Value in Ukraine

By Jack Laurenson and Natalya Datskevych

When it comes to agricultural resources, Ukraine struck black gold. The country is home to roughly 1/3rd of the world's black earth—fertile, dark soil that yields some of earth's most bountiful harvests. But maximizing that richness for the country is another story. Ukraine is a major exporter of grains, but it can hardly dictate its prices on the world wheat market.

To add value at home, processing is the way to go. Higher prices earned by selling flour instead of wheat and jams instead of berries translate to higher Ukrainian incomes. While the production raw food dominates agribusiness here, food processing is on the up. Last year, milling of wheat into flour for export rose by 30 percent, according to agriculture economists.

In 2016, the total value of all processed food production in Ukraine was estimated at $15 billion. But Soviet-era infrastructure and shifting markets makes further progress less than straightforward.

Sunflower Success

Growers succeeded with sunflowers. The country is the world's largest producer and exporter of sunflower oil. In 2016, Ukraine produced 4.4 million tons of sunflower oil—more than its milk, cream, sugar, and flour production combined.

Kernel, the world's largest exporter of sunflower oil, tops Ukraine's list of exporters. Last year, it crushed 3 million tons of seeds into 1.1 million tons of oil. It's a success that's hard to replicate. Agribusiness experts

"In 2016, Ukraine produced 4.4 million tons of sunflower oil—more than its milk, cream, sugar, and flour production combined"

point to other cooking oils, as well as syrups, jams, sauces, pastes and cheeses as potential areas of growth. But none are now produced on a scale approaching sunflower oil.

"Ukraine has become very competitive on the global market in its production and export of high quality, organic, raw goods," says Andriy Yarmak, an agricultural economist with the United Nations Food and Agriculture Organization. "In recent years, the country has been making important strides forward with processed foods... But we have to remember that Ukraine was highly reliant on exports to Russia for a long time."

Yarmak is referring to Ukraine's legacy of selling to Soviet consumers, a not-so-demanding market. Ukraine in the process of maneuvering its processed-food sector toward other markets, he says. But it's not a quick or easy process.

Forest Honey

Production and export of honey replicates the sunflower success story, although on a far smaller scale. Last year, Ukraine exported $134 million worth of honey. Ukraine now ranks after China and Argentina as the world's third-biggest exporter of honey. Experts say that much of Chinese 'honey' is actually corn or fructose syrup, concocted in factories. Insecticides killed many of China's bees. While export volumes for close rivals remained steady in recent years, Ukraine's exports tripled since 2013.

"There is value in Ukrainian food processing, but we have not been able to capitalize on it"

Foreign Unions Protect Milling Jobs

Moving from exporting raw goods to processed goods has been a challenge, not just because of changing markets. Ukraine lacks infrastructure to support food processing on a large scale. Its buyers, protecting jobs, prefer to process at home.

"Ukraine needs to invest in processing and storage facilities," says Jean-Paul Piotrowski, chairman of Credit Agricole Bank in Kyiv. Until it does, it won't reach its potential as an agricultural powerhouse. The problem is complicated because most countries that import raw food from Ukraine already have adequate facilities to process the products at home, Martin Schuldt, general manager of Cargill Ukraine, told a recent agricultural conference.

It's—for them—a more lucrative option. Wheat importers like Indonesia, for example, sometimes won't buy Ukrainian flour. Milling infrastructure already exists there. Politically influential trade unions often block flour imports to protect milling jobs. "There is value in Ukrainian food processing, but we have not been able to capitalize on it," Schuldt says.

Ukrainian Companies Increase Processing

Much of Ukraine's food processing is undertaken by global giants that control their supply chain, like Nestle, Coca-Cola, and Carlsberg. Now, smaller Ukrainian companies are investing to move up the value chain.

"We're now exporting processed fruit and dairy products, namely syrups, jams, fillers, toppings and various

> We're now exporting processed fruit and dairy products, namely syrups, jams, fillers, toppings and various cheeses to countries in Europe and the Middle East

cheeses to countries in Europe and the Middle East," says Mari Rudomski, an executive with the Schedryk food processing company.

Exports account for 20 percent of the company's annual sales. Rudomski says the company has big plans for the next few years, including building a second factory dedicated solely to processed milk products, mainly cheeses. They hope to boost their numbers significantly. Evgeniy Radovenyuk, the CEO of the Grain Alliance farming conglomerate, a cooperative that manages around 50,000 hectares of land in central Ukraine, says his organization is preparing to do more of their own processing in coming years.

"Next year, we will begin grinding our own grain and also start processing soybeans," he says. "We are even ready to handle other people's grain, too." With revenue from grain sales shrinking due to weak prices, Radovenyuk says the move to milling will add value to products leaving his company's farm gates.

Slithering to a Big Market: Ukraine's Snail Trade

by Aisha Down

To many people, the best-known exports of the Carpathian Mountains are the folktales—legends of vampires and werewolves that haunt the damp, forested slopes. But, to a few enterprising Ukrainians, the region's most promising product lies much closer to the ground—in three species of snails that are slithering slowly, very slowly, east from Romania's Transylvania.

Ukraine: Snail Playground

Snail meat, doused in butter and garlic, fetches handsome prices in the upscale restaurants of Western Europe—more than $10 a kilogram, says Yuriy Dzera, a Lviv-based consultant and snail exporter. Only two days away by truck is France, the world's largest consumer of escargot—40,000 tons a year. It used to be that French snails supplied French tables. But wild French gastropods have been depleted by overcollection.

Though France now has 191 snail farms, sprinkled across humid parts of the hexagon, gourmet consumers prefer wild, "all-natural" snails. These feast on forest shrubbery, as opposed to snail food. Ukraine, says Dzera, is just the place to collect these. Wages are low. Depending on the year's snail price, he pays about $1 per kilogram. High season is in late spring, where the rain has loosened the soils and the snails come out from their winter hibernation.

Villagers in the Carpathians leave bags of live snails by the side of the road. His trucks come around to fetch them. Data from the Ukrainian Agribusiness Club shows total Ukrainian snail exports increased 6-fold in four years, from 58 tons in 2014 to 344 in last year. Demand is increasing, says Dzera.

Getting Gastropods to Market

Organizing snail collection is pretty easy, says Dzera. Getting snails to Europe is far harder. Ukrainian snails are usually processed in Romania, Lithuania, and Poland. Hurdles include a stack of EU regulations, slow bureaucracy and the expensive

logistics of transporting live snails across the border to plants.

First, there's the $50 annual permit from Ukraine's Ministry of Ecology and Natural Resources. This allows Dzera to collect the snails. It takes months to line up. Then, there's transport. Snails have to arrive alive at processing plants across the border. This gives Dzera a three-week window after collection to get the gastropods into refrigerated trucks and to the plants.

There is another option: processing snail meat in Ukraine. It's an eight-month procedure in which snail meat and shells are boiled separately and cleaned, then reassembled. Processed snails fetch higher prices, says Dzera, who rented a snail-processing plant in past years. But, now, European regulations stipulate that a Ukrainian snail plant that processes for export to Europe must meet a number of finicky requirements—and get certification from the European Commission.

This is doable. Turkey and Indonesia are major suppliers of snails for France's dining tables. But Dzera calculates that this would be a $500,000 investment. For him, the investment does not make economic sense.

Merging With EU Regulations

Volodymyr Lapa, head of Ukraine's State Service on Food Safety and Consumer Protection, says that the situation might change for Ukrainian snail processors. In the wake of the free trade agreement between the EU and Ukraine, there is a three-step process for Ukraine to send to the EU semi-processed animal products—like milk and snails.

Ukrainian regulation is checked by the European Commission, amended, and rechecked. Finally, a European Commission team visits Ukraine and inspects laboratories and processing facilities. The whole procedure can be as fast as three months, he says.

Generally, it takes longer. Stepping back from snails, the big picture is that Ukrainian food regulations are being standardized to EU norms. As this happens, certification should get faster and cheaper.

Dzera isn't waiting—and neither are most other snail merchants. Data from Agriculture Club shows Ukraine has four snail exporters, selling live snails—though it doesn't list Dzera's company, Helix, among them. The nation's one snail processor, Eco Ulitca, prepares meat for the domestic market only.

Ukrainians Try Escargot

Meanwhile, in a blue-painted bistro in downtown Lviv, Andriy Dzuban has found another way around the logistics problem. The enterprising restaurateur owns Lviv's premier—and likely only—snail restaurant: Tante Sophie, a couple of streets from Lviv's old town square. To keep supply steady, he farms the snails himself, on 30 hectares not far from Lviv city.

> "It used to be that French snails supplied French tables. But wild French gastropods have been depleted by overcollection"

“Villagers in the Carpathians leave bags of live snails by the side of the road. His trucks come around to fetch them”

Most Ukrainians, he says, have never eaten snails. But demand is robust. Tante Sophie sees 3,500 customers a month. Restaurant goers were skeptical at first. But his snails, cooked in a slew of French-inspired buttery sauces, have a following. “From the beginning, people were interested and curious,” he recalls. “They weren’t afraid.”

While French consumers prefer wild snails, Dzuban says his farmed snails fetch good prices in Ukraine—10 euros a kilo. “We can’t be sure about wild snails,” said Dzuban, an advocate of ‘heliculture’, or snail farming. “We don’t know what they eat. But in our farm, we know about the quality of the feed.”

Dzuban plans to expand. His operation produces some 10 tons of snails per year. With an investment of 50,000 euros, he plans to double production this year. Meanwhile, he helps interested villagers farm snails on their land. If they can’t sell them on the open market, he will buy them. One day, he says, he, too, might export to Europe. But only if there’s an excess.

“There’s more opportunity in Ukraine,” he said, focusing on the market close at hand. No need to get distracted by the US market: 1 billion snails consumed every year.

“From the beginning, people were interested and curious,” he recalls. “They weren’t afraid”