

Give us this day our daily bread Matthew 6.11

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In the midst of a new European war, bread is once again becoming a strategic commodity. Put simply it has become a matter of life and death. And bread is life. Growing cereals has been way of life for many thousands of years. The cereal grower needs to tend the crop, they aren't herders living a nomadic life seeking out new grazing for their animals. The cereal grower needs to live next to their fields. Their lives are closely tied to the seasons and the weather and their success to the vagaries of rain, sun, frost, floods, storms and droughts.

The lands and plains of Central and Eastern Europe are one of the world's best locations for growing cereals. With the right weather the yields are high and today wheat is grown on a large scale in an area that has become known as the

breadbasket of Europe – and perhaps the world. Harvest, transport and warehousing are well organized. Countries like Poland, Hungary, Romania, Ukraine and Russia usually produce much more cereal than they need for themselves and are major exporters of the crop.

Early 2022 will not, however, be remembered because of the weather. It will be remembered because of another war in Europe. Ukraine is a country with a long history of conflicts, in the 1939-45 war it is estimated to have lost 7.5 million people, 4.5 million of them civilians. But it is also a country determined to survive, and a country which has a history of great achievements in agriculture and industry.

Last year Ukrainian wheat production was 33 million tons, an average of 4.65 tonnes per hectare. In total 45.7 million

tons of cereals were harvested from 65.3% of the sown area. The plan for 2022 was to harvest 80.6 million tons that would provide 60.7 million tons of export income for the country. These figures well exceed the previous year's results.

When the Ukrainian Ministry of Agriculture announced its plans for 2022 it included in its calculations the possibility of drought. Not included in their calculation was war. And they were not alone, no one in the industry had included war in their calculation of European cereal yields. Nor did people calculate on the resistance of the Ukrainian people or the scale of the refugee crisis with millions leaving their homes and up to 5 million predicted to become refugees.

Today (it's early March as we write this) no one can predict the outcome of the

war, nor if this year Ukraine's agriculture will yield a crop. When just survival is a struggle how many people will be left to go to the fields and tend the plants? Will the cereals be destroyed by the invading army? Will there be enough agricultural equipment left to harvest and transport the crops that are grown? Questions that remain unanswered for the moment but the outlook is not good.

The Russian invasion of Ukraine has, of course, not only overshadowed the wheat market but every aspect of life. Not only will Ukraine suffer, but Russia's economy and wheat production will certainly be affected too. In the event of strong, world-wide trade embargoes will Russia's traditional import partners – for example the North African states, Near East states, Bangladesh - still want to buy Russian wheat, cereals and flour? Can the remaining producers step up to fill the gaps?

Prices are increasing. Energy (oil and gas), transport and fertilizer prices rise

daily and are reaching record highs. The EU Agricultural Commissioner has put the rise in fertilizer prices at 142% over the past year. Reduced use of fertilizers can save some money, but only at the expense of lower yields.

Ukraine and Russia are responsible for 30% - sometimes even 40% - of the world's cereal exports. Russia is now occupying the remaining Black Sea ports of Ukraine, cutting the country off from one of the most important trade routes out of the country for bulk products.

In our previous articles about the nov|GRain project, we have said that approximately 20 - 30% of the harvested cereals go to waste because of damage in storage. Add to that figure another 30% loss and it becomes clear a bread shortage is almost inevitable, and high prices will be paid for this staple of the world in the near future, leading to starvation for those that cannot afford it.

No wonder, just days ago, the Hungarian government issued a decree forbidding any cereal exports from Hungary. This ban stands until mid-May. Imagine that this becomes an EU directive, or even a world-wide response? How will those countries that cannot grow their own cereals cope – and what if you simply cannot afford the high price of flour or bread?

In these circumstances the job of the nov|GRain team is to do all we can to reduce the loss of harvested cereals, because every grain is needed to reduce the anticipated shortage and help meet the demand for bread. We need to continue the development of the novel larvicide, the novel application system and the up-to-date survey of insecticide resistance. This is our clear task and this is our frontline. ■

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