



Game Changers

Sowing Seeds of Sustainability in Russian Farming



PROJECT

Program to mitigate carbon emissions through sustainable farming practices and to promote healthier food choices

CHALLENGE

Reduce greenhouse gas emissions and soil erosion

COMPETITIVE EDGE

Implement sustainable farming practices, such as low tillage, in combination with Dow's seeds of corn, sunflower and rapeseed (canola) crops

DOW SOLUTION

A tailored package of technologies to reduce impact on the environment and deliver healthier and more sustainably produced crops

Traditional farming practices in Russia, like those in much of the agricultural world, include tilling fields each year to remove weeds and create furrows for irrigation between rows of crops. But tilling consumes fuel, causes soil erosion and can lead to substantial greenhouse gas (GHG) emissions due to soil oxidation, and excessive fertilizer use.

Dow Seeds technologies, combined with low-till agriculture and other innovative farming solutions, are helping to reduce the negative impact on the environment in Russia, while also promoting more sustainable and healthier crop options.

Nurturing Sustainable Practices Together

Dow Seeds, a unit of Dow AgroSciences, is working with multiple partners to implement a package of sustainable farming practices at four large Russian

farms. Focusing on healthy corn, sunflower and canola (rapeseed) crops, Dow Seeds is helping farmers to implement low- or no-till farming practices.

These innovative techniques have many benefits, including contributing to reduced GHG emissions. Low- or no-till farming minimizes the use of heavy mechanical equipment used in conventional plowing, thereby reducing fuel consumption and associated carbon emissions. Such methods also help sequester existing carbon materials in the soil rather than emitting them to the atmosphere. Optimized fertilizer use also helps to avoid emissions of nitrogen oxides – gases with extremely high global warming potential.

Combined, the use of these sustainable farming methods has the potential to

eliminate up to 100,000 metric tons of GHG emissions per year at just four farms.

Dow Seeds is supported by Farmer's Edge International, experts in agronomy, working to educate Russian agricultural experts about the benefits of sustainable farming. Together, Dow Seeds and its consultant are also exploring opportunities to expand the project to additional farms across the country.

Beyond the Benefits of Lower Emissions

In addition to reducing GHG emissions, the sustainable farming practices that are being encouraged by Dow Seeds have several other benefits for the environment and Russian society:

- Lower erosion: Maintaining higher carbon content in the soil also improves water retention, which not only reduces

the need for additional watering of crops, it enhances the soil's ability to resist erosion during hard rains.

- Enhanced ecosystem health: By increasing the resilience of the soil, crops are stronger and better able to resist weeds and pests, reducing the need for pesticide and herbicide applications.
- Higher yields: A healthier ecosystem also leads to higher crop yields.
- Healthier lifestyles: Food oils derived from canola are high in healthy Omega-9 oils. They have no trans-fat and are high in monosaturated "heart-healthy" fats. Farming these oils, combined with local processing and food production, leads to improved dietary choices and healthier options.

Harvesting a Bright Future

By adapting innovative agricultural practices, the farms involved in the

pioneering project with Dow have the potential to lead long-term change at farms across Russia. These high-profile projects showcase the advantages of sustainable farming and can provide training and education opportunities to accelerate their adaptation.

Among the additional anticipated benefits are an increase in Russian production of cooking oils based on sunflower and canola crops, reduced dependency on imports, and the promotion of the use of low-saturated fat oils for healthier cooking in Russia.

Leaving a Lasting Legacy

As a world leader in chemistry with a growing presence in Russia, Dow is implementing new technology that can reduce the country's greenhouse gas emissions in three key areas:

Infrastructure

Objective: Implement energy-efficient solutions for new construction and renovation to reduce the amount of energy used in heating and cooling.

Agriculture

Objective: Promote sustainable agricultural solutions and healthier lifestyles through proven practices that allow soil to retain carbon, minimizing the use of mechanical farming equipment, fertilizer and water.

Industry

Objective: Demonstrate carbon reduction possibilities by improving industrial processes and supply chain and construction processes.

To Learn More

Go to www.dow.com/sochi2014 to learn more about Dow activities to promote sustainability in conjunction with the Sochi 2014 Olympic and Paralympic Winter Games.

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