To address the challenges to achieving food security in India requires uplifting and enhancing the incomes of the country’s farming community—80 percent of whom are “marginal” and small landholders living in abject poverty. Interventions in agriculture can address hunger and malnutrition as well as other challenges including poverty, water and energy use, climate change, and others.

The contribution of agriculture to India’s GDP is 15.4 percent, which is higher than the world average of 6.4 percent. This massive contribution comes mostly through the use of conventional farming practices, but there is no estimated record of what new mechanized methods can bring.

The Gram Utkarsh project in Prayagraj, Uttar Pradesh, implemented by S M Sehgal Foundation in partnership with GE works with the belief that farm mechanization can help farmers make agriculture more rewarding. The area is mainly an agricultural district, and the main crops are wheat and rice. The principled sources of irrigation are canals and tube wells.

Project Gram Utkarsh in villages of Karchhana tehsil in Prayagraj emphasizes building the capacities of rural communities to lead their own development. Through an integrated approach, the project focuses on aspects crucial to the well-being of rural lives and improving the delivery of public services, particularly related to education, health and sanitation, and farmer’s prosperity.

**Paddy thrresher**

Through the Gram Utkarsh Project, Brijesh Pal, a farmer of village Chakanur, acquired an electric paddy thrasher machine that helps separate grain from the crop. The paddy thrasher has saved time and labor costs needed for crop threshing and has also enabled Brijesh to earn extra income from renting out the machine to fellow farmers. Brijesh says, “Earlier we used to do it manually by engaging labor. For three bigha of my land, the cost came to Rs 4,500, which we now save. There is no loss of grain with the use of this machine.”

**Seed drill**

Seed drill is another farm mechanization tool that helps farmers at the time of sowing. Farmer Inderjeet Singh, from village Chakpura Miyan Khurd, used the seed drill he received under the project. He shares multiple benefits, such as penetration of the seed at the right depth in the soil along with manure, even distribution of seeds, water-saving, use of less seed, good sprouting, and of course the financial savings. Inderjeet used the seed drill in his three bigha land and, since he does sowing work in other fields as well, he used the machine for another 41 bighas of other farmers and earned Rs 500 per bigha.

**Solar sprayer**

Agriculture in India is dependent on rains, the purest form of water. In addition, if the sector makes use of sunlight, another natural resource available in abundance, it can address climate change. Kamlesh Pandey, from village Rahikala, put a solar sprayer to use in his field. He shares that he can now do the spraying himself, and one bigha can be covered in thirty minutes, which earlier was more time-consuming and required manual labor.

**Composting**

Composting is an effective method for preparing good-quality manure in a short time. Farmers often leave cow dung in the open where it is exposed to the sun and rain, causing it to lose its nutritional value. Half-decomposed cow dung invites termites and other soil-borne diseases into the field. Under the project, farmers were given a demonstration of a “compost unit bag.” Waste decomposer composting promoted by the foundation is a technology developed by the National Center of Organic Farming that helps prepare compost in 40–50 days, and the compost bed is used three times a year. Dinesh Kumar sees much reduction in weeds and termites in the crops, which used to infect the crop with half-decomposed cow dung. He has also reduced the dosage of chemical fertilizers on the crop and finds his crop healthier than before.

**Animal husbandry**

Animal husbandry is a key allied activity practiced by farmers in rural villages, which helps them earn additional income, however the farmers are often not aware of animal nutrition and management—a requirement for profitable dairy farming. Inadequate feeding causes nutrition imbalances in milch animals so they cannot reach a desired body weight; they remain unhealthy and produce less milk. Dairy animals are dewormed, and high-quality minerals are added to their diet. The method is sustainable because dietary supplements are available locally, and training is provided on how to administer them to the animals. When Shalendra Kumar learned about the Gram Utkarsh project and the benefits derived by other farmers, he attended an awareness session and fed his animals with the nutrient powder. Within a month, Shalendra noticed improvement in his animals’ health and an increase in the milk output of the animals, resulting in increased income. The milk production has almost doubled, and the animals are healthy. The Gram Utkarsh project has lived up to its name (Utkarsh means prosperity in Hindi) and improved the agriculture and overall well-being of the farmers. In the present time of COVID-19, farm mechanization and new agricultural techniques will aid farmers in accomplishing their farming activities in less time as well as less cost.