

# “Dehqan” Farms: Uzbekistan’s Underserved 70 Percent

## Key Messages

- Support targeted to the small *Dehqan* farms would increase national agricultural productivity, supporting livelihoods in rural areas.
- Seventy percent of Uzbekistan’s agricultural output comes from the *Dehqan* farms that represent 95 percent of all farms and operate only one fifth of all farmland.
- *Dehqan* farms have unrestricted production and marketing choice, stronger tenure security and higher crop productivity compared with large farms.
- *Dehqan* farms, however, experience global yield gaps, have difficulty entering modern markets, and own little incomes.
- Uzbekistan’s agriculture sector needs to ensure that *Dehqan* farms receive the vital support they require for increased productivity, commercial competitiveness and profitability.
- Priorities are land markets, collective actions, farm advisory services and integration of young and female managed *Dehqan* farms.
- The sector will benefit by learning from global practices in smallholder agricultural transformation.

Uzbekistan has two distinct, but dominant and co-existing agricultural structures. One is that of the small-scale family farms, locally known as *Dehqan* (“peasant”) or household farms. The second is that of the large commercial private farms known as *Fermer*<sup>1</sup>. This policy brief analyses the characteristics

and challenges of *Dehqan* farms along main agricultural variables like land size and tenure, production and productivity, farm labor, farm decision-making and market participation. By doing so, the article contributes to the better understanding of *Dehqan* farms. The brief underpins the claim that small-scale farms in Uzbekistan are productive, efficient and sustainable. Nevertheless, it also points out the needs for ensuring that *Dehqan* farms receive the vital support they require, given the challenges the farms face and the overall national benefits of working with them.

## “Dehqan” Farms Characteristics

**Farm size and tenure:** *Dehqan* farmers are granted land by the State as lifetime inheritable possession<sup>2</sup>. Currently, there are more than 4.8 million *Dehqan* farms sharing 20 percent of the country’s arable land. *Dehqan* farmers cannot expand their irrigated land beyond the maximum 0.35 hectare (ha), set in the Land Code. Actually, *Dehqan farms* operate a lesser land size of 0.2 ha, on average<sup>3</sup>.

Absence of a legally recognised market for irrigated land is a major challenge for *Dehqan* farms. Apart from emerging informal land transactions, the only way for *Dehqan* farms to enlarge their land size is by accessing low-quality rain-fed land (up to 2 ha)<sup>4, 5</sup>.

*Dehqan* farms co-exist with the over 80 thousand large farms/*Fermer*s. Large farms operate an average land size of 15 ha accessed through a long-term (ten to fifty years) lease arrangement with the State. If wanted,

<sup>1</sup> Traditional small farms from the Soviet times were renamed and strengthened through laws adopted in 1998. Another law legalized the establishment of individual large farms, as of 1998.

<sup>2</sup> Land Code of the republic of Uzbekistan. 30.04.98, no. 598-I (amended in 2019). The Code affirms that agricultural land belongs to the State.

<sup>3</sup> *Dehqans* have two plots. A 0.08 ha near their home for horticulture and animal production and other 0.12 ha at a distance for grain production. See Djanibekov, U. *et al.* 2013. *Understanding contracts in evolving agro-economies: Farmers, Dehqans and networks in Khorezm, Uzbekistan*. Journal of Rural Studies, 32, 137-147.

<sup>4</sup> For accounts of informal land markets like rent and crop sharing, see Djanibekov, U., *et al.* 2013, cited above.

<sup>5</sup> UNDP, 2010. *Livestock production in Uzbekistan: Current state, Challenges and Prospects*.

large farms can engage in additional market transaction for irrigated land<sup>6</sup>.

*Dehqan* farms have stronger tenure security relative to the State controlled large farms. They receive land from the local authority without any State obligation and they are exempted from State ordered land reforms. On the contrary, large farms are subjected to frequent programs on farm restructuring, optimization, and diversification over the last two decades, resulting in their weak land rights<sup>7, 8, 9</sup>.

**Farm Labor:** *Dehqan* farms are run by experienced family members, at a low transaction cost. *Dehqan* family members typically have additional farm and/or non-farm jobs, besides their small farmland. Mostly, they are engaged in seasonal on-farm employment by large farms, and particularly in cotton picking<sup>10</sup>. Such a mix of small farm and extra seasonal work sustains the small farms with multiple incomes. *Dehqan* farms are sustainable part of the social and cultural setting of the rural community. Their social capital enables them harness local agricultural knowledge and remain resilient to crisis<sup>11</sup>. Conversely, self-employed owners of large farms incur extra costs of hiring additional farm-labor. Large farms, relying on hired labor and knowledge face inefficiency manifested by costs of labor supervision and underemployment<sup>12</sup>.

*Dehqan* farms rarely get the opportunity to enhance their farming skills and knowledge, with exceptions of some projects providing technical support. *Dehqans* have limited access to farm demonstrations on modern and improved agricultural practices and technologies. Online resources and advisory services relevant for these farms are also scarce and *Dehqan* farms are less likely to use digital technology. Thus, their labour tends to be low-skilled and manual. Similarly, active groups for collective learning and participatory knowledge sharing are not well developed, or at an infant stage<sup>13, 14</sup>.

Moreover, *Dehqan* farms are increasingly challenged by family members out-migration. Rural out-migration in Uzbekistan did not free up more farmland and increase the productivity of the remaining labor. Rather, the high rural out-migration in recent decades resulted in loss of young and skilled family members. This poses challenges for the future of small farms in some labour scarce areas. The migration of young male family members results in aging of farm labor and increases the burden on female family members 'left behind' or abandoned<sup>15</sup>. Consequently, the poorly resourced female household heads, that represent 20 percent of all, will need to work on family farms. This is in addition to low paying seasonal jobs and taking care of the family<sup>16, 17</sup>.

**Crop production and productivity:** *Dehqan* farms have high and increasing total agricultural production. Total agricultural output from *Dehqan* farms constitutes 70 percent of all agricultural production in the country. These farms produce 56 percent of all crops, including more than 65 percent of all the country's horticulture crops. Total production of high value vegetable and fruit crops by *Dehqan* farms increased when production on large farms decreased in 2017 and 2018, as in **Table 1** below<sup>18</sup>.

**Table 1: Aggregate Production Changes by farms, in % from previous year.**

| Crops      | 2017          |       | 2018          |        |
|------------|---------------|-------|---------------|--------|
|            | <i>Dehqan</i> | Large | <i>Dehqan</i> | Large  |
| Potatoes   | ▲ 4.3         | ▼ 5.8 | ▲ 3.6         | ▼ 1.6  |
| Melons     | ▲ 6.2         | ▼ 1.4 | ▲ 9.4         | ▼ 23.6 |
| Grapes     | ▲ 9.3         | ▼ 6.4 | ▲ 0.1         | ▼ 3.8  |
| Vegetables | ▲ 4.3         | ▼ 3.8 | ▲ 1.0         | ▼ 22.3 |
| Berries    | ▲ 3.7         | ▼ 1.7 | ▲ 1.0         | ▼ 1.0  |

Source: Composed based on State Statistics Committee data (2019)

<sup>6</sup> Lerman, Z. 2008. *Agricultural Development in Uzbekistan: The Effect of Ongoing Reforms*. The Center for Agricultural Economic Research. Discussion Paper No. 7.08, The Hebrew University of Jerusalem.

<sup>7</sup> Presidential Order 22.09.2009, No.3287 "On measures of further optimization of sizes of land plots under the authority of individual farms".

<sup>8</sup> Presidential Decree 29.12.2015, No.2460 "On further measures of reforms and development of agriculture for 2016-2020".

<sup>9</sup> The Resolution of the Cabinet of Ministers 9.01.2019 No.14

<sup>10</sup> Petrick, M. & Djanibekov, N. 2016. *Obstacles to crop diversification and cotton harvest mechanization: Farm survey evidence from two contrasting districts in Uzbekistan*. IAMO Discussion Paper No. 153.

<sup>11</sup> Djanibekov, U., et al. 2013, cited above.

<sup>12</sup> Except for cotton picking, labor work is remunerated via payments in kind (part of harvest, crop by-products), or by allotment of small piece of farmland to farm workers. See the paper by Djanibekov et al. 2013.

<sup>13</sup> Kazbekov, J.; Qureshi, A. S. 2011. *Agricultural extension in Central Asia: Existing strategies and future needs*. International Water Management Institute. IWMI Working Paper 145.

<sup>14</sup> This is also acknowledged by the government. See Decree of the President—7865, 2019. The Strategy for the Development of Agriculture Sector in Uzbekistan (2020-2030).

<sup>15</sup> Official statistics shows growing over- working age or aged population above 64 years.

<sup>16</sup> FAO, 2019. *Gender, agriculture and rural development in Uzbekistan*

<sup>17</sup> Seitz, W. 2019. *International migration and household wellbeing*, World Bank

<sup>18</sup> State Statistics Committee of Uzbekistan. 2019. *Agriculture of Uzbekistan*. 2015-2018

*Dehqan* farms have much higher average productivity of a hectare of land than large farms. For instance, the wheat yield on *Dehqan* farms was 6 tons/ha in 2016, while it was 4.8 tons/ha on large farms<sup>19</sup>. More so, compared with large farms, *Dehqan* farms have higher productivity for high value crops like vegetables and fruits. In 2016, the total value of crop output per hectare of land on *Dehqan* farms was 29 million Uzbekistan Sum (UZS) (about 3000 USD), while it was 4.5 million UZS (500 USD) on large farms<sup>20</sup>. This is a value difference of 70 percent. The inverse relationship between land size and output on *Dehqan* farms is a result of their soil management and efficient use of scarce water<sup>21</sup>.

Nevertheless, *Dehqan* farms have not reached their potential. Their productivity for major crops lags global maximum yields as in **Table 2**.

**Table 2: Yield gaps (tones/ha) for major crops**

| Major crops | Average Yield * | World maximum Yield | Yield gap |
|-------------|-----------------|---------------------|-----------|
| Wheat       | 6               | 16.8 (New Zealand)  | 11        |
| Maize       | 10              | 12.5 (Chile)        | 2.5       |
| Rice        | 5               | 15 (China)          | 10        |
| Potato      | 34              | 46 (Netherlands)    | 12        |
| Grape       | 15.5            | 30 (India)          | 15        |

\* figures are proxy due to lack of farm disaggregated data  
Source: Composed from various sources within 2016-2018<sup>22</sup>.

Global competitiveness of *Dehqan* farms is constrained by their limited access to improved technologies, soil and water testing services and high performing seeds. They have limited access to financial resources to purchase technology, seeds, fertilizers, fuel for irrigation and machinery. This is worsened by the absence of an inclusive and effective public research, agricultural extension and advisory service and the historical focus on the large cotton and wheat farms. Small farms have

limited bargaining power and incur high transaction costs when acting individually to access input markets<sup>23</sup>.

**Livestock production and productivity:** *Dehqan* farms are dominant contributors in the Uzbekistan's livestock sector. They hold more than 90 percent of the livestock population and produce 92 percent of the livestock products (meat, milk, egg)<sup>24</sup>. *Dehqan* farms supply 97 percent of the milk, 95 percent of the meat and 57 percent of all eggs in the country<sup>25</sup>, in 2018. *Dehqan* farms have small per capita herd size. They own an average of 3 heads of cattle and 2 cows, while large farms own an average of 42 heads of cattle and 13 cows<sup>26</sup>.

Livestock productivity in *Dehqan* farms is low. In 2016, the value per livestock unit was only 1.2 million UZS (130 USD)<sup>27</sup>. Milk productivity in *Dehqan* farms operates below potential. The annual milk yield per cow is 7 metric tons, with an average yield of 6 liters per day. World highest records for annual milk yields are, however, above 10 metric tons per cow in South Africa and Israel and average of 20 liters per day<sup>28</sup>. The shortages of arable land for livestock feed production causes scarcity of animal feed. In addition, *Dehqan* farms have limited access to quality animal health services, high performing genetic herds, sanitary conditions, business capacity, and knowledge to increase their livestock productivity<sup>29</sup>.

**Farm decision-making:** Unlike the State mandated large farms, *Dehqan* farms have operational autonomy to make their own production and marketing decisions. They can choose what, and how much to grow on their small plots, and when, how much and where to sell it. *Dehqan* farms are free to grow two or three crops a season and have greater opportunity to diversify their produce. Thus, they can meet the demands for more diverse, nutritious and high value product nationally and globally.

<sup>19</sup> This is a result of a spill-over effect of the government wheat program. see Zorya, S., Djanibekov, N., Petrick, M., 2019. Farm Restructuring in Uzbekistan: How Did It Go and What is Next? World Bank

<sup>20</sup> State Statistics Committee. 2019.

<sup>21</sup> For arguments that hold that smallholders are rational allocators of available resources, see. Ruttan, V.W. 2002. Productivity Growth in World Agriculture: Sources and Constraints. Journal of Economic Perspectives,16(4):161-184. For adoption incentives, refer Foster, D. and Rosenzweig M R. 2010. Microeconomics of technology adoption. Annual Review of Economics 2:1, 395-424

<sup>22</sup> See [worldindata.org](http://worldindata.org) and [faostat.fao.org](http://faostat.fao.org) open data.

<sup>23</sup> Foster, D. and Rosenzweig M R. 2010. Cited above

<sup>24</sup> State Statistics Committee of Uzbekistan. 2018

<sup>25</sup> Zorya, S. et al. 2019. Cited above

<sup>26</sup> Lerman, Z. et al. 2016. *Wheat production and regional food security in CIS: The case of Belarus, Turkmenistan and Uzbekistan*. FAO Policy Studies on Rural Transition No. 2016-1.

<sup>27</sup> Zorya, S. et al. 2019. Cited above

<sup>28</sup> See Global cow milk production 2015 to 2019 at <https://www.statista.com/>

<sup>29</sup> Productivity declined since 2010, as the number of livestock units managed by *Dehqan* farms increased and wheat replaced production of fodder crops nationally. See International Fund for Agricultural Development (IFAD). 2015. Uzbekistan Dairy Value Chains Development Program Design completion report.

*Dehqan* farms also have the flexibility to use environmentally sustainable alternatives like growing less water demanding crops and organic fertilizers, due to limited access to chemical inputs. These farms can play a major role in the increasing global climate change mitigation agendas.

In this context, a study on small farms in neighboring Tajikistan proved the power of small farms (female managed) to independently and critically plan, decide and improve farms and their family's well-being<sup>30</sup>.

**Output market participation:** Majority of *Dehqan* farmers are engaged in output markets, directly in small local markets or through intermediaries. *Dehqan* farms sell most of their fruits and vegetables and livestock products<sup>31</sup>. A study showed that nearly one-third of *Dehqan* farms sell 60 percent of what they produce<sup>32</sup>. The country's 85 percent of milk sales comes from these farms<sup>33</sup>.

*Dehqan* farms, however, do not benefit much from their market participation. They are isolated from high-end and better paying supermarkets and exports. This is because they have difficulty in maintaining consistent supply volume, quality, and safety standards. More so, supermarkets and exporters avoid high transaction costs of reaching the fragmented small farms. There are limited experience where large farms, the currently established clusters, and cooperatives work with small *Dehqan* farms to bulk, collect and sort their products. *Dehqan* farms also have constrained access to processors, storage, and packaging facilities for their perishable products, resulting in losses<sup>34</sup>.

Despite some collective actions in irrigation (water users association), joint hiring of tractor and marketing among close farms, farmers have limited understanding of the benefits of agricultural service cooperatives. This is due to the negative experience of collectivization from the Soviet times<sup>35, 36</sup>.

Currently, the Government of Uzbekistan acknowledges the value of aggregation and agricultural cooper-

atives. More than 30 agricultural cooperatives are reported to be established in 4 regions in 2019, following the adoption of the Presidential Decree №4239 "On measures for the development of agricultural cooperation in the horticulture industry"<sup>37</sup>. What this means for *Dehqan* farms' participation in high-end markets and benefit will need further assessment.

## Global Experience and The Way Forward

Uzbekistan's *Dehqan* farms face noteworthy challenges, despite their significant responsibility and contribution in the economy. *Dehqan farmers* are among the 75 percent of the country's rural poor<sup>38</sup>. Their living standard is constrained due to the little public attention given to solving their challenges identified earlier including smallness of farms, access to modern knowledge, technology, services, improved inputs and output markets.

In the past, public interventions targeting *Dehqan* farmers were almost non-existent and if, and when, they existed, they were not well planned nor adequately funded. More so, except some spill-over effects, the government has rarely intervened in smallholder production nor provided substantial public services<sup>39, 40</sup>.

Initiatives targeting *Dehqan* farmers have however become an important part of recent agricultural policies of Uzbekistan. The agricultural development Strategy for 2020-2030 recognizes the challenges of *Dehqan* farmers and acknowledges the importance of improving their production, marketing efficiency and livelihoods. The Strategy also advocates for increased public spending for programs working on productivity growth. This is a historic and good start, but implementation of the Strategy will take time and livelihood results will only be seen in few years.

Global experiences in smallholder development demonstrate the importance for the following **four** points:

**Ensuring tailored interventions:** working with *Dehqan* farms requires taking account of their needs

<sup>30</sup> Malvicini, P G. 2019. Agricultural extension for women smallholder's in Central Asia: Improving food security, nutrition, and income. How to stimulate inclusive growth? *Small Farms in Transition*. Leibniz Institute of Agricultural Development in Transition Economies. Halle-Salle, Germany. 26 – 28 June

<sup>31</sup> State Statistics Committee, 2019. Cited above

<sup>32</sup> Lerman, Z. 2008. Cited above

<sup>33</sup> IFAD. 2015. Cited above

<sup>34</sup> Decree of the President—7865, 2019. *The Strategy for the Development of Agriculture Sector in Uzbekistan (2020-2030)*; Malvicini, P. 2019 cited above.

<sup>35</sup> Djanibekov, N. and Wolz, A. 2014. Development problems in Central Asia: The example of agricultural service cooperatives. IAMO Jahreszahl 17: Halle (Saale), pp. 65-73

<sup>36</sup> Lerman, Z. 2013. Cooperative development in Central Asia, FAO Regional Office for Europe and Central Asia Policy Studies on Rural Transition No. 2013-4

<sup>37</sup> See News: <https://kun.uz/en/news/2019/03/16/uzbek-farmers-to-be-united-in-cooperatives>

<sup>38</sup> UNDP, <https://www.uz.undp.org/content/uzbekistan/en/home/countryinfo.html>

<sup>39</sup> Petrick, M., & Djanibekov, N. 2019. Farm restructuring in Uzbekistan: What next? IAMO PB No. 36.

<sup>40</sup> Zorya, S. et al. 2019. Cited above

and behaviors. Better understanding of the farms helps in providing them with adequate and tailored support to increase their productivity, commercial competitiveness and wellbeing. For this to happen, there is a need for generating big data and information about *Dehqan* farms followed by careful analysis and a clear implementation roadmap. It also requires for serious tailoring of interventions and changes in mindsets of service providers. It calls for reallocation and budgeting of public and private finance and consistently embedding *Dehqan* sensitive actions in various institutional settings.

Tailored interventions mean that the government, with other stakeholders, promotes programs that target progressive *Dehqan* farms for enhanced productivity and commercialization. Priority programs for *Dehqan* farms are land markets with rights, fair irrigation water distribution, inclusive financial markets, collective actions, participatory research, agricultural advisory and other services (input supply and support services like plant clinic, veterinary, and breeding), and inclusion of youth and female managed small farms<sup>41</sup>. Experience demonstrates that small farms wellbeing improved once their access to land and finance improves, and adequate training is provided. Capacity building programs that focus on technical and business skills, and technology development and demonstration on higher performing crop varieties, breeds and fertilizer use are found to improve their productivity<sup>42</sup>.

**Encouraging networks and collective actions:** The development of effective linkages with high-end markets is key in addressing output market constraints of *Dehqan* farms. Partnering with agro-processors and direct access to consumers is important. This calls for increased support for meeting quality standards, ensuring constant delivery mechanisms, and better managed supply-chains. Networks and partnerships with large farms should also be strengthened. Experiences around the world demonstrate that such partnerships have potential to facilitate access to inputs, services, capacity development opportunities, and markets. It may however require public support and facilitation, to ensure the inclusion of poor farms<sup>43</sup>.

Global experience shows that collective actions have an aggregation function for small volumes of output, improve quality and safety of products and improve

collective business management and negotiation skills of small farms<sup>44</sup>. Some *Dehqan* farms can therefore evolve into agricultural collectors and processors themselves, through groups.

Inclusive agricultural service cooperatives also have potential to provide an important market function for *Dehqan* farms. Such voluntary cooperatives can facilitate joint machinery use, irrigation water use, output marketing, credit and saving as well as purchase of inputs<sup>45</sup>.

**Learning from others:** Uzbekistan can expand its learning from global experiences and practices with similar context, for its smallholder agricultural transformation. Public programs that target smallholders are common in many countries with high number of small farms. The role of the governments is to finance technical and managerial capacity building programs; facilitate establishment of farm groups; facilitate linkage with input and output markets, ensure inclusive rural finance, promote participatory research and provide advisory services to small farmers. Apart from public spending, experience in public-private investments in smallholder agriculture and outsourced private sector, on behalf of the governments, are plenty<sup>46, 47</sup>.

The cumulative experience from development agencies, civil societies and private sectors that address the challenges of small farms can be leveraged to influence policy- and decision-making processes in favor of small farms.

Scaling-up pilot works is also important. For instance, the project working with smallholder farmers in similar Tajikistan village (*mahallas*), demonstrated the potential of working with groups of women farmers to increase farm productivity. This in turn increases productivity, food and nutrition security and income to use for health and education expenses. Discussions with agricultural experts in Uzbekistan confirm that remote rural villages are like those in Tajikistan. Yet similar efforts in Uzbekistan are unknown or not activated in a systematic way<sup>48</sup>.

More so, established relations across countries with smallholder agriculture has potential to leverage from. For instance, there is a professional opinion that countries across the Central Asia Regional Economic Cooperation (CAREC) have a potential to share

<sup>41</sup> For successful experiences of working with small farms see: International Finance Corporation, 2019. Working with smallholders a handbook for firms building sustainable supply chains. The World Bank Group

<sup>42</sup> Hazell, P. & Rahman, A. (eds.) 2014. New Directions for Smallholder Agriculture. IFAD.

<sup>43</sup> Hazell, P. & Rahman, A. (eds.) 2014. Cited above

<sup>44</sup> IFC, 2019. Cited above

<sup>45</sup> Djanibekov, N. and Wolz, A. 2014. Cited above.

<sup>46</sup> IFC, 2019. Cited above

<sup>47</sup> Davis, K., et al. 2018. What Works in Rural Advisory Services? Global Good Practice Notes. GFRAS.

<sup>48</sup> Malvicini, P G. 2019. Cited above.

knowledge and opportunities for cooperation at this level <sup>49</sup>.

**Promoting the rural non-farm economy:** non-farm small businesses have increasingly become an important part of rural economies, globally. Successful non-farm activities supplement farm incomes. They provide services to farm-based livelihoods, as well as new opportunities particularly for the rural youth and women. Rural youth can especially benefit and contribute to modern and internet based non-farm rural sectors. It could also be a best way of using remittances from rural migrants and returnees <sup>50, 51</sup>.

## Conclusion

*Dehqan* farms are key to national food security and the overall agricultural economy and rural livelihoods of Uzbekistan. Despite having suboptimal land size, *Dehqan* farms are efficient and sustainable producers. This is attributed to their strong tenure security and operational freedom in production and marketing. Nevertheless, *Dehqan* farms productivity and commercialization is faced with significant challenges that need consideration. *Dehqan* farms potential for increased intensification can be enhanced if the enabling environment is conducive. Given appropriate technical, financial, and institutional support, *Dehqan* farms can raise their productivity and get their product to market efficiently. In conclusion, this policy brief advocates for more analysis and clear support for the Uzbekistan's smallholder sector.

The main message is that the government works closely with *Dehqan* farms for tailored provision of public agricultural goods and services.

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<sup>49</sup> CAREC is a partnership of the 11 neighboring countries (Afghanistan, Azerbaijan, China, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. <https://www.adb.org/countries/subregional-programs/carec>

<sup>50</sup> Hazell, P. & Rahman, A. (eds.) 2014. Cited above.

<sup>51</sup> Seitz, 2019. Cited above.