

## **Registered Organic Farmers in Conversion to Livestock Farming in Uttarakhand: Profile of Farms and Farmers**

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### **ABSTRACT**

Organic farming as an innovation is being diffused systematically in Uttarakhand state by Uttarakhand Organic Commodity Board (UOCB), enabling farmers to market including export organic crop produce at premium prices. The livestock maintained by these organic farmers were also meeting the certain criteria of recommended organic animal husbandry standards. Therefore, in view of increasing demand for organic livestock products, the characteristics of farm and organic farmer were studied for a better comprehensive idea towards promoting organic livestock farming alongside organic crop products. A total of 180 registered organic farmers were selected through multistage sampling technique and interviewed. Most of the farmers were middle aged, with primary level of education and belonged to higher castes. Organic farming being an innovation, farmers were converting their farms on a small scale and an average farmers had 3.8 years experience in organic farming. The farmers were maintaining mostly desi breeds along with bio-diversity at genetic and species level, wherein, crop-livestock were well integrated, which is one of the objectives of organic farming. Being registered with UOCB as organic farmers, farmers were getting information on organic farming in general and package of practices on crops but to promote organic livestock farming, farmers were in need of information about organic animal husbandry standards, species-specific package of practices, timely information on export potential and processing and packing of organic livestock products for effective marketing.

Organic farming is rapidly expanding all over the world with more area cultivated and with increasing range of food products produced and marketed. All over the world, over 120 countries produce certified organic agriculture products and about 31 million hectares (0.7% of the agricultural land) are under organic management in atleast 33,891 farms in all regions of the world. The Asian region has experienced steady expansion in organic agriculture production and the total organic area in Asia, is almost 2.9 million hectares (0.21% of total agricultural area), managed by almost 1,30,000 farms. Organic farming is emerging as a promising option for small and marginal farmers of India inhabiting rain-fed areas, arid zones and hilly and mountain areas (Pratap and Ananda, 2006). The organic land in India is 1,50,790 hectares spread over 1, 547 farms constituting 0.1% of total agricultural land (Willer and Youssefi, 2007).

Recognizing India's rain-fed agriculture that can potentially make use of organic methods, the Government of India (GOI) is paying attention to promote organic agriculture through allocation of funds under different development programmes. Moreover, Uttarakhand, Mizoram and Sikkim have declared themselves as organic states. Market potential in India, for organic products in 2006 was estimated to be around Rs. 1452 crores, and the most preferred food was fresh vegetable, fruits, milk and dairy products (Menon, 2007).

Uttarakhand is the first state declared as organic in India and organic movement took its present shape from a rural technology development project i.e. Technology Transfer and Development Center in 1998. A nodal agency i.e. Uttarakhand Organic Commodity Board (UOCB) was created on 19 May, 2003 to enhance organic

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activities in agricultural and allied sectors like horticulture, medicinal and aromatic plants & herbs, milk production and animal husbandry throughout that state. Moreover, rural institutions like Organic Producer Groups (OPGs) were created to sensitize and train the farmers for effective production and marketing of organic products locally as well as for export. As a result, farmers could be able to market organic crop and horticultural produce, whereas, there is no single organic livestock produce marketed. In view of increasing demand for organic livestock produce, a study was carried out to assess the characteristics of organic farmer and farm (land and livestock).

### METHODOLOGY

Uttarakhand has selected purposively, being the first organic state in India and three districts were selected purposively where organic farmers were involved in more livestock farming activities: two from Garhwal region i.e. Dehradun and Tehri Garhwal and one from Kumaon region i.e. Nainital district. From each district, two blocks were selected randomly, whereas, two villages from each block selected on random basis @ 10 from each villages. Thus, the samples selected and studied consists of 180 organic farmers, out of which, 110 farmers were from hill area and 70 from plain area, by virtue of their geographical location. Information was collected through direct interview and the farmers studied consisted of 84 certified organic farmers and 96 farmers were in different stages of conversion to organic (i.e. between 1-3 years of

conversion period). The sample also represented 111 male farmers and 69 female farmers.

### RESULTS AND DISCUSSION

To promote organic movement in livestock sector alongwith crop sector, the characteristics of farm and farmer will provide the basic idea to orient the farmers in the livestock sector so as to get their livestock products certified as organic, keeping in view of the demand for the products.

#### Profile of farmers

##### *Personal characteristics*

The average age of organic farmers in the study area was 42.4 years, whereas, the average age of organic dairy farmers in Norway was 47.2 yrs. (Flaten *et al.*, 2004). The farmers from middle and young age group might be more receptive to new ideas and would like to try new farming practices. The social stratification in terms of caste of organic farmers revealed that majority (68.34%) of the farmers belonged to general category i.e. higher castes. Farmers belonging to higher castes usually have high risk bearing ability as well as more innovativeness. There is need to encourage farmers from other categories like SC, ST and other backward castes by making them aware of the concept of organic farming. In general, 75.56 per cent of the respondents were with and above primary education. The education status of farmers might have helped them, in converting farm to organic systems of farming.

**Table 1: Personal characteristics of organic farmers**

| S.No.               | Number (%) of organic farmers |            |            |             |
|---------------------|-------------------------------|------------|------------|-------------|
|                     | Hill                          | Plain      | Total      |             |
| <b>Age in years</b> |                               |            |            |             |
| 1.                  | Young (21.36)                 | 33 (30.00) | 14 (20.00) | 47 (26.11)  |
| 2.                  | Middle (37 to 51)             | 54 (49.10) | 35 (50.00) | 89 (49.44)  |
| 3.                  | Old (52-66)                   | 23 (20.90) | 21 (30.00) | 44 (24.45)  |
| <b>Caste</b>        |                               |            |            |             |
| 1.                  | General                       | 77 (70.00) | 46 (65.71) | 123 (68.34) |
| 2.                  | Backward                      | 00 (00.00) | 09 (12.86) | 09 (5.00)   |
| 3.                  | SC                            | 12 (10.90) | 10 (14.29) | 22 (12.22)  |
| 4.                  | ST                            | 21 (19.10) | 05 (7.14)  | 26 (14.44)  |
| <b>Education</b>    |                               |            |            |             |
| 1.                  | Illiterate                    | 21 (19.09) | 08 (11.43) | 29 (16.11)  |
| 2.                  | Can read and write            | 10 (9.09)  | 05 (7.14)  | 15 (8.33)   |
| 3.                  | Primary education             | 31 (28.18) | 07 (10.00) | 38 (21.11)  |
| 4.                  | Secondary education           | 33 (30.00) | 20 (28.57) | 53 (29.44)  |

| Number (%) of organic farmers    |                  |            |            |             |
|----------------------------------|------------------|------------|------------|-------------|
| S.No.                            |                  | Hill       | Plain      | Total       |
| 5.                               | Intermediate     | 11 (10.00) | 19 (27.14) | 30 (16.67)  |
| 6.                               | Graduation       | 04 (03.64) | 08 (11.43) | 12 (06.67)  |
| 7.                               | Post graduation  | 00 000     | 03 (04.29) | 03 (01.67)  |
| <b>Family size</b>               |                  |            |            |             |
| 1.                               | Small (4-8)      | 72 (65.40) | 59 (84.30) | 131 (72.80) |
| 2.                               | Medium (8 to 12) | 34 (30.90) | 11 (15.70) | 45 (25.00)  |
| 3.                               | Large (12-15)    | 04 (03.60) | 00         | 04 (02.20)  |
| <b>Level of Family Education</b> |                  |            |            |             |
| 1.                               | Low              | 10 (09.10) | 18 (25.71) | 28 (15.56)  |
| 2.                               | Medium           | 81 (73.64) | 42 (60.00) | 123 (68.33) |
| 3.                               | High             | 19 (17.26) | 10 (14.29) | 29 (16.11)  |

#### Farm related characteristics of organic farmers

##### *Land holding and land characteristics of organic farmers*

The average land holding of organic farmer was 0.98 hectares; whereas, the land under conversion to organic farming was on average 0.36 hectares amounting to 35 per cent of total land. Farmers were not converting

their land as a whole, but were very cautious in taking decisions about the innovation and would like to test on small-scale, before adopting on a large scale scattered land holdings might be one of the reasons.

Marginal and small holdings and up to 90 per cent of all holdings. Very few number of farmers were in semi-medium (2-3 ha) (6.67%) and medium (3-5 ha) (3.33%) categories of land possession.

**Table 2: Land holding of organic farmers**

| S.No. | Land in Ha                   | Hill area | Plain area | Total            |
|-------|------------------------------|-----------|------------|------------------|
| 1.    | Total land holding           | 85.79     | 90.83      | 176.62           |
| 2.    | Under organic cultivation    | 30.06     | 25.70      | 61.76            |
| 3.    | Proportion of organic to (%) | 41.22     | 28.29      | 34.97            |
| 4.    | Rain fed area                | 85.79     | 68.12      | 153.91 (87.14 %) |
|       |                              | (100 %)   | (75 %)     | (12.86 %)        |

Mean (land holding) = 0.98; Mean (land under conversion) = 0.36

#### Land holding

|    | Land in hectares                 | Hill (110) |         | Plain (70) |         | Total (180) |         |
|----|----------------------------------|------------|---------|------------|---------|-------------|---------|
|    |                                  | F          | (%)     | F          | (%)     | F           | (%)     |
| 1. | Less than one hectare (Marginal) | 72         | (65.45) | 50         | (71.43) | 122         | (67.78) |
| 2. | 1-2 hectare (Small)              | 21         | (19.09) | 13         | (18.57) | 40          | (22.22) |
| 3. | 2-3 hectare (Semi medium)        | 13         | (11.82) | 03         | (04.29) | 12          | (06.67) |
| 4. | 3-5 hectare (Medium)             | 04         | (03.64) | 04         | (05.71) | 06          | (03.33) |

#### *Experience in organic farming*

The average experience in farming was 23.92 years, whereas, the average experience in organic farming was 3.8 years. The UOCB has started motivating and

registering the farmers in a phased way and moreover, the farmers were with different levels of educational and land holding, which might be influencing their adoption of organic farming at different levels.

**Table 3 : Farm related characteristics of organic farmers**

| <b>Farming Experience</b> |                              |            |            |            | <b>Farming Experiences in organic system</b> |            |            |             |    |
|---------------------------|------------------------------|------------|------------|------------|--|------------|------------|-------------|----|
| S. No.                    | Level of experience in years | Hill area  | Plain area | Total      | 1.   | 2.         | 3.         | 4.          | 5. |
| 1.                        | Less (4-22)                  | 68 (61.82) | 29 (41.42) | 97 (53.89) | Late converters (1-3 yrs)                    | 03 (02.73) | 10 (14.29) | 13 (07.22)  |    |
| 2.                        | Medium (22-40)               | 28 (25.45) | 27 (38.57) | 55 (30.56) | Mid converters (3-6 yrs.)                    | 83 (75.45) | 57 (81.43) | 140 (77.78) |    |
| 3.                        | More (40-56)                 | 14 (12.72) | 14 (20.00) | 28 (15.56) | Early converters (6-8 yrs.)                  | 24 (21.82) | 03 (04.28) | 27 (15.00)  |    |

**Farming systems of organic farmers**

Before conversion to organic farming, 63.89 per cent of farmers were in traditional farming systems, whereas, nearly equal number of farmers were in conventional and partly conventional farming system. Being away from the reach of green revolution technologies, for most of the farmers this innovative practice of organic farming became a boon, where their traditional farming practices are given due recognition.

Organic farmers were with mixed farming system and when enquired about the type of farming enterprise

interested in future, 64.45 per cent of farmers would like to continue in the same i.e. mixed farming system. In this type of systems besides man, livestock play a crucial role to strengthen the economy and development. However, the price premiums they were getting for organic crop produce and the awareness regarding export potential for organic livestock produce as well as local demand for quality products might have developed interest in these farmers to go for specialized enterprises. A farmer's choice of farmer system, including organic farming is influenced by complex personal, social and economic factors (Ostergaard, 1998).

**Table 4 : Farming system of organic farmers**

| S.No.  | Previous farming system                | Number (%) of organic farmers |              |               |
|--|--|-------------------------------|--------------|---------------|
|  |  | Hill (N=110)                  | Plain (N=70) | Total (N=180) |
| 1.   | Conventional                           | 03 (02.73)                    | 27 (38.57)   | 30 (16.67)    |
| 2.   | Traditional                            | 86 (78.18)                    | 29 (41.43)   | 115 (63.89)   |
| 3.   | Partly conventional                    | 21 (19.09)                    | 14 (20.00)   | 35 (19.44)    |
| <b>Present farming system</b>                      |  |                               |              |               |
| <b>Nature</b>                                      |  |                               |              |               |
| 1.   | Mixed/integrated farming               | 110 (100.00)                  | 70 (100.00)  | 180 (100.00)  |
| 2.   | Specialized farming                    | 0                             | 0            | 0             |
| 3.   | Any other farming                      | 0                             | 0            | 0             |
| <b>Type of farming system interested in future</b> |  |                               |              |               |
| 1.   | Mixed farming                          | 88 (80.00)                    | 28 (40.00)   | 116 (64.45)   |
| 2.   | Mixed + Specialized dairy farming      | 12 (10.90)                    | 21 (30.00)   | 033 (18.33)   |
| 3.   | Mixed + Specialized goat/sheep farming | 20 (18.18)                    | 26 (37.14)   | 046 (25.56)   |
| 4.   | Mixed + Specialized poultry farming    | 10 (9.10)                     | 05 (7.16)    | 015 (08.33)   |

### Farm Characteristics

Flaten *et al.* (2004) found that among organic dairy farmers of Norway, a greater number of early converters of organic farming grew crops and kept few poultry and tended more towards mixed livestock farming, whereas, a substantial part of the same group follow the organic traditions of mixed and diversified farming.

#### *Bio-Diversity of farm at farm, genetics and species level*

All the organic farmers were maintaining diversity in the crops through crop rotation along with 2-3 livestock species. Farmers were maintaining biodiversity at the species level, in terms of maintaining 2-3 species of livestock, and growing more than 2-3 crops in a year. As such, at the ecosystem level, farms were well diversified

in maintaining the plants as well as livestock, which is one of the pre-requisites of organic farming. As the farmers were with small land holdings, they were maintaining 2-3 livestock species to supplement income and nutritional needs of households, besides manure and draught power. The livestock were largely raised on crop residues and grazing. Experience shows that diversified farms are best in meeting the various demands of ecosystem, self sufficiency and financial needs as stated by Zundel and Kilcher (2007). Genetics diversity is seen only in case of the cattle i.e. with local (*Desi*), cross-bred and exotic breeds. Although maintaining genetic diversity is a major objective of organic livestock production, in The Netherlands 63 per cent of organic dairy herds were Holsteins (Nauta, 2001), and a similar situation exists in the UK (Roderick and Hovi, 1999).

**Table 5: Bio-diversity of farms at different levels**

| S.No. | Farm level diversity                              | Number (%) of organic farmers |                                     |                      |
|-------|---|-------------------------------|-------------------------------------|----------------------|
|       |   | Hill (N=110)                  | Plain (N=70)                        | Total (N=180)        |
| 1.    | Farm diversity maintained<br>(crop and livestock) | 110 (100.00)                  | 70 (100.00)                         | 180 (100.00)         |
|       | <b>Genetics level of diversity</b>                |                               |                                     |                      |
| 1.    | Genetic diversity maintained                      | 26 (23.64)                    | 21 (30.00)                          | 47 (26.11)           |
| 2.    | Not maintained                                    | 84 (76.36)                    | 49 (70.00)                          | 133 (73.89)          |
|       | <b>Breeds maintained</b>                          | <b>Desi (nos.)</b>            | <b>Crossbred/<br/>Graded (nos.)</b> | <b>Exotic (nos.)</b> |
| 1.    | Cattle  | 669<br>(86.99)                | 88<br>(11.44)                       | 12<br>(1.56)         |
| 2.    | Buffalo   | 283<br>(80.62)                | 68<br>(19.38)                       | --                   |
| 3.    | Goat  | 609 (100.00)                  | --                                  | --                   |
| 4.    | Poultry   | 733<br>(100.00)               | --                                  | --                   |
|       | <b>Species level diversity</b>                    |                               |                                     |                      |
| 1.    | One species                                       | 14 (12.72)                    | 09 (12.86)                          | 23 (12.78)           |
| 2.    | Two species                                       | 41 (37.28)                    | 31 (44.28)                          | 72 (40.00)           |
| 3.    | Three species                                     | 30 (27.28)                    | 23 (32.86)                          | 53 (29.44)           |
| 4.    | More than 3 species                               | 25 (22.72)                    | 07 (10.00)                          | 32 (17.78)           |
|       | <b>Species maintained</b>                         |                               |                                     |                      |
| 1.    | Cattle  | 88 (80.00)                    | 61 (87.14)                          | 149 (82.78)          |
| 2.    | Buffalo   | 80 (73.00)                    | 52 (74.00)                          | 132 (73.00)          |
| 3.    | Goat  | 79 (72.00)                    | 09 (13.00)                          | 88 (49.00)           |
| 4.    | Poultry   | 44 (40.00)                    | 30 (43.00)                          | 74 (41.00)           |

**Socio-Economic characteristics of organic farmers**

Participation or involvement in the organizations leads to promotion of farming activities in general. Registering with the UOCB and also membership in organizations like Gram Panchayat, Organic Producer Groups (OPGs) and Self Help Groups (SHGs) might be the reason for the medium level of social participation observed among the organic farmers. Moreover, Mass media play greater role in making the farmers accessible to various developments taking place from time to time which enhance their awareness as well as their knowledge.

All the farmers were the registered members of UOCB, and hence, were supplied with the farm magazine

contains information on organic activities. In general, more than half of the farmers were with medium level of information access. Cent per cent of the farmers felt the need of information regarding organic animal husbandry standards, whereas, most of the farmers from plain area mentioned that they would like to know about the export potential of organic livestock products and also future market demand from time to time. Majority of farmers were following traditional farming practices before converting to organic farming systems, which might be the reason for improved income after converting to organic systems of farming, whereas, in case of conventional farmers, conversion might have resulted in reduction in cost of inputs as organic systems of farming are less external input based.

**Table 6 : Socio-economic characteristics of organics farmers**

| S.No.   | Level of social participation                          | Number (%) of organic farmers |              |               |
|---|--|-------------------------------|--------------|---------------|
|   |  | Hill (N=110)                  | Plain (N=70) | Total (N=180) |
| 1.  | Low (1-1.5)  | 56 (50.91)                    | 28 (40.00)   | 84 (46.67)    |
| 2.  | Medium (2-3.5)   | 51 (46.36)                    | 40 (57.14)   | 91 (50.6)     |
| 3.  | High (3.5-5)   | 03 (02.73)                    | 02 (02.86)   | 05 (02.77)    |
| Mean = 1.53   |  |                               | S.D.=0.68    |               |
| <b>Mass media ownership</b>                               |  |                               |              |               |
| 1.  | Radio  | 92 (82.72)                    | 43 (61.43)   | 134 (74.44)   |
| 2.  | Television   | 86 (78.18)                    | 56 (80.00)   | 142 (78.89)   |
| 3.  | Newspaper  | 11 (10.00)                    | 26 (37.14)   | 37 (20.56)    |
| 4.  | Farm magazine (UOCB)                                   | 110 (100.00)                  | 70 (100.00)  | 180 (100.00)  |
| 5.  | Multimedia   | 00                            | 05 (07.14)   | 05 (02.78)    |
| <b>Level of information sources access of the farmers</b> |  |                               |              |               |
| 1.  | Low (<10.52)   | 24 (21.82)                    | 13 (18.57)   | 37 (20.56)    |
| 2.  | Medium (10.52 to 18.98)                                | 69 (62.73)                    | 33 (47.14)   | 102 (56.66)   |
| 3.  | High (>18.98)  | 17 (15.45)                    | 24 (34.29)   | 41 (22.78)    |
| Mean = 14.75  |  |                               | S.D.=4.23    |               |
| <b>Information needs</b>                                  |  |                               |              |               |
| 1.  | Organic animal husbandry standards                     | 110 (100.00)                  | 70 (100.00)  | 180 (100.00)  |
| 2.  | Export potential of organic livestock and its products | 45 (40.90)                    | 55 (78.57)   | 100 (55.56)   |
| 3.  | Future local/domestic market demands                   | 85 (77.27)                    | 65 (92.86)   | 150 (83.33)   |
| 4.  | Processing of organic livestock produce and packaging  | 56 (50.90)                    | 45 (64.29)   | 101 (56.11)   |
| <b>Economic status of organic farmers</b>                 |  |                               |              |               |
| 1.  | Improved income  | 86 (78.18)                    | 29 (41.43)   | 115 (63.89)   |
| 2.  | Reduction in cost of inputs                            | 24 (58.57)                    | 41 (58.57)   | 65 (36.11)    |

### CONCLUSION

Organic farmers in Uttarakhand were in different phases of conversion and marketing their crop produce as "in-conversion" at premium prices. The livestock farms they were maintaining were meeting the certain basic criteria suitable for organic systems. If these farmers are further oriented and trained towards managing their livestock farms as per organic animal husbandry standards, they can earn premium prices for organic livestock products too, by marketing certified livestock products locally as well as globally since the demand for such products is mounting day by day.

### REFERENCES

- Flaten, O.; G. Lien,; M. Ebbesvik,; M. Koeslingb and P.S. Vallec. (2004). Characteristics, goals, motivations and attitudes among organic dairy farmers in Norway. Paper for the Post-organic future, working group, XI World congress of Rural sociology, Trondheim, Norway, July 25-30, 2004.
- Menon, M.K. (2007). The market potential for organic foods in India. In: Papers submitted to the International Conferences on Organic Agriculture and Food Security, FAO, Rome, Italy, 3-5 May 2007, pp. 65-67.
- Nauta, M.J. (2007). Breeding strategies for organic animal production: an international discussion, In: Hovi, M. and Baars, T. (eds.) Breeding and feeding for animal health and welfare in organic livestock systems. Proceedings of the fourth NAHWOA Workshop, Wageningen, 24-27 March 2001. University of Reading, Reading, UK, pp. 7-13.
- Ostergaard, E. (1998). Ett skritt tilbake og to frem. En fenomenologisk studie av bonder i omstilling til økologisk landbruk. Doctor Scientiarum thesis, Department of Horticultural and crop sciences, Agriculture University of Norway.
- Partap, T. and S.Ananda (2006). Organic Agribusiness, In: Papers submitted to the International Conference on Organic Agriculture and Food Security, FAO, Rome, Italy, 3-5 May 2007, pp. 75-77.
- Roderick, S. and M. Hovi. (1999). Animal health and welfare in organic livestock system: Identification of constraints and priorities. A report to the Ministry of Agriculture, Fisheries and Food. The University of Reading, Reading, UK.
- Willer, Helga & Yussefi, Minou (Eds.) (2007). The World Organic Agriculture: Statistics and Emerging Trends 2007, 9<sup>th</sup> edition. International Federation of Organic Agriculture Movements (IFOAM), Bonn, Germany & Research Institute of Organic Agriculture (FiBL), Switzerland, 250p.
- Zundel, C. and L. Kilcher. (2007). Issues paper: Organic agriculture and food availability. In: Papers submitted to the International Conference on Organic Agriculture and Food Security, FAO, Rome, Italy, 3-5 May 2007, pp. 3-23.