DOI: 10.15740/HAS/AU/11.1/26-33
*Agriculture Update*
Volume **11** | Issue 1 | February, 2016 | 26-33
Visit us : *www.researchjournal.co.in*
e ISSN-0976-6847

**RESEARCH ARTICLE :**

# Workload of women in conventional and organic farming in the selected agro-climatic zones of northern Karnataka

**RAJESHWARI DESAI AND P.R. SUMANGALA**

**ARTICLE CHRONICLE :**
**Received :**
*13.06.2015;*
**Revised :**
*26.12.2015;*
**Accepted :**
*11.01.2016*

**SUMMARY :** Women play a predominant role in almost all agricultural operations as well in organic farming. Organic farming is women oriented as they do most of the operations like cleaning the seeds for sowing, transplanting, weeding, harvesting, threshing, winnowing and seed preservation. All these are done with an admirable patience and commitment. Hence the present study was conducted with the objective to study the participation level and delineate the areas of participation of women in organic and conventional farming. The results revealed that irrespective of the agro- climatic zones, among both organic and conventional farming practices, the sole participation of women was observed in performance of value added products. Women dominance was observed among the organic farm women for seed activities also for harvesting, threshing and processing activities for both organic and conventional farm women. The sole performance of men to dominance of men in the performance of the activities was seen in performance of irrigation and marketing activities. The work load of organic farm women with respect to seed activities, sowing, after care operations and threshing and processing activities was more when compared to conventional farm women and was found to be statistically significant at one per cent level. The higher involvement of conventional farm women was found with respect to preparatory tillage activities to that of organic farm women and was found to be statistically significant. The work load of both organic and conventional farming families was almost equal with respect to irrigation, harvesting, marketing and preparation of value added products.

**KEY WORDS :**
Workload,
Agro-climatic zones,
Organic farming

**How to cite this article :** Desai, Rajeshwari and Sumangala, P.R. (2016). Workload of women in conventional and organic farming in the selected agro-climatic zones of northern Karnataka. *Agric. Update*, **11**(1): 26-33.

**A**uthor for correspondence :
**RAJESHWARI DESAI**
Extension Education Unit (UAS), GADAG (KARNATAKA) INDIA
Email:rajmanohardesaiuas@gmail.com

See end of the article for authors' affiliations

## BACKGROUND AND OBJECTIVES

Early civilization tells us that women were the first agriculturists, while men were out for hunting and tending livestock. Women are responsible for at least 50 per cent of the total food production of the country. Indian Himalayas a pair of bullocks works 1064 hours, a man 1212 hours, and women 3485 hours in a year on one hectare farm (Navdanya, 2006).

The recent growth of organic farming, a labour intensive system has turned the focus towards women. Organic farming is women oriented as they do most of the operations like cleaning the seeds for sowing, transplanting,

weeding, harvesting, threshing, winnowing and seed preservation (Kang, 2007). All these are done with an admirable patience and commitment. Women are the major stakeholders in organic culture. The adoption of organic farming significantly increases labour requirements compared to conventional farming. Women often shoulder the increased labour to a greater degree than men (Rebecca and Jutamart, 2002). Organic farming needs manpower, if the manpower is studied gender wise, the amazing fact is that the women's contribution is greater or equal to men. The women in the household know better what is needed to provide a balanced diet for the family. Therefore, they try to include plants rich in nutrition along with the regular crops. Small women farmers were practicing crop diversity and growing disease resistant/tolerant varieties of crop on their land in the study areas of Andhra Pradesh (Pionetti, 2002).

Besides food security, women are also concerned about the cash needs of the family. This makes them more responsible towards activities like backyard poultry, dairy, bee keeping, horticulture etc. which serves as cash income as well as a source of nutritious food. This makes the family economically "stronger and happier" (Reddy, 2008). It is noticed that they are always involved in labour, patience and tolerance intensive agricultural activities.

In the present study an effort has been made to know the role of the women in organic farming with the following objectives.

– To study the participation level and delineate the areas of participation of women in organic and conventional farming.

– To assess the workload of women in organic/ conventional farming in terms of man days.

## RESOURCES AND METHODS

The present study was conducted in three northern agro climatic zones of Karnataka *viz.*, Northern Dry Zone -3 (NDZ), Northern Transitional Zone-8 (NTZ) and Northern Hilly Zone-9 (NHZ) of Karnataka. Further, three villages *viz.*, Hirehandigol, Ammangi and Kamadheneu were selected from the selected agro-climatic zones, respectively. From each village, fifty farm women involved in organic farming were selected for collecting the required information for the study. Pre structured questionnaire with personal interview method was used to collect the required information from the sample. The participation level of farm women/men in organic/conventional farming were recorded on a five point scale and these were further given scores as Solely by women (SBW):5, Dominance of women and partial involvement of the other gender in performance of the activity (DBW):4, Equal participation of men and women in performance of the activity (EP):3, Dominance of men and partial involvement of the other gender in performance of the activity (DBM):2, Solely performed by men (SBM):1.

Time spent to perform the activity was collected taking into consideration the number of days spent for the activity by recall method. The time and days spent on organic/conventional farming activities by the sample were recorded. Number of man days spent for the farm activities is calculated by using the formula.

| | |
|---|---|
| One man day | = 8 hours |
| Time spent/day (mins.) was converted to hours as follows | $= \frac{\text{Time spent/day (minutes)}}{\text{60 minutes}}$ |
| Number of man days spent on farm activities in a year | $= \frac{\text{Time spent (h) x Total no. of days performed in a year}}{\text{8 hours}}$ |

Weighted average mean was computed to delineate the participation level trend of women in organic/ conventional farming activities. t-test was used to compare the mean house hold and farm expenditure per annum and the man days spent by the organic and conventional farming families on farm activities.

## OBSERVATIONS AND ANALYSIS

Table 1 reveals the participation level mean scores of the farm activities performed by selected organic and conventional farm women. It is clear from the table that in NDZ and NTZ, the mean score of organic farm women for preparatory tillage activities was 1.00, which disclosed that it was solely performed by men. However, the participation mean score of conventional farm women of NDZ and NTZ and organic and conventional farm women of NHZ was 3.0 indicating the equal participation of men and women in performance of preparatory tillage activities. The participation mean score of organic farm women of NDZ, NTZ was 3.66 and 3.82 for NHZ for seed activity revealing the participation trend towards dominated by women. The mean score of conventional farm women for seed activity ranged from 3.16 to 3.5 disclosing the participation trend towards the equal participation of men and women in the performance of

the activity.

The calculated participation mean score of the sowing activity for both organic and conventional farm women ranged from 3.53 to 3.97 disclosing the participation trend towards the dominance of women in performance of the activity. The mean score of 2.52 to 2.82 for after care operations revealed the equal participation of men and women among both organic and conventional farming families in the performance of the activity. Irrigation activities were performed solely by both organic and conventional farm men in all the zones, hence, the mean score was 1.0. The recorded participation mean score of harvesting activity for organic farm women of NDZ was 3.38 and 3.45 for NHZ, while, 3.40 for the conventional farm women of NDZ, indicating the participation trend towards equal participation of men and women in the performance of the activity. However, the mean score of 3.90 for organic farm women and 3.61 for conventional farm women of NTZ and 3.55 for conventional farm women of NHZ indicated the dominant role of women in performance of the activity. The range of participation mean score of threshing and processing activity was 4.07 to 4.29 for both organic and conventional farm women. This disclosed the dominance of women in the performance of the activities.

The marketing activity included two sub activities *viz.*, weighment and bagging, transportation and marketing. The weighment and bagging was men dominated activity, whereas transportation and marketing was performed solely by men.

Hence, the participation mean score of marketing activity was 1.5 for both organic and conventional farming families of all three zones. The preparation of value added products activity was performed exclusively by both organic and conventional women, hence the mean score was 5.0. The supervision of servants on farm activities was performed jointly by men and women among the organic and conventional farming families of NDZ,NTZ and NHZ, hence, the mean score was 3.0.

Irrespective of the agro- climatic zones, among both organic and conventional farming practices, the sole participation of women was observed in performance of value added products with the mean score of 5.0. These results were supported by the findings of Santha and Perumal (1998).

The mean scores of seed activities for organic farm women and the mean score of harvesting, threshing and processing for both organic and conventional farm women ranged from 3.52 to 4.24 indicating the participation trend towards women dominance in the performance of the above mentioned activities. The mean score of 2.57 to 2.80 for after care operations revealed the equal participation of men and women among both organic and conventional farming families in the performance of the activity. The mean scores of 1.0 and 1.5 for irrigation and marketing activities, respectively disclosed the participation trend of organic and conventional farming families from sole performance of men to dominance of men in the performance of the activities. The mean score of 3.0 for supervision of

**Table 1 : Participation level mean scores of the farm activities performed by the women from organic and conventional farming families of agro-climatic zones of northern Karnataka (n=300)**

| Farm activities | NDZ | | NTZ | | NHZ | | Total | |
|---|---|---|---|---|---|---|---|---|
| | OF (n=50) | CF (n=50) | OF (n=50) | CF (n=50) | OF (n=50) | CF (n=50) | OF (n=150) | CF (n=150) |
| Preparatory tillage | 1.00 | 3.00 | 1.00 | 3.00 | 3.00 | 3.00 | 2.00 | 3.00 |
| Seed activities | 3.66 | 3.16 | 3.66 | 3.50 | 3.82 | 3.50 | 3.72 | 3.38 |
| Sowing | 3.97 | 3.97 | 3.87 | 3.91 | 3.53 | 3.53 | 3.84 | 3.86 |
| After care operations | 2.55 | 2.82 | 2.52 | 2.80 | 2.62 | 2.80 | 2.57 | 2.80 |
| Irrigation (Water management) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Harvesting | 3.38 | 3.40 | 3.90 | 3.61 | 3.45 | 3.55 | 3.58 | 3.52 |
| Threshing and processing | 4.16 | 4.07 | 4.29 | 4.16 | 4.16 | 4.26 | 4.24 | 4.20 |
| Marketing | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| Supervision of servants on farm activities | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Preparation of value added products | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |

(5: Solely by women (SBW), 4: Dominance of women and partial involvement of the other gender in performance of the activity (DBW), 3: Equal participation of men and women in performance of the activity (EP), 2:Dominance of men and partial involvement of the other gender in performance of the activity (DBM), 1:Solely performed by men (SBM):1.

servants on farm activities disclosed the equal participation of men and women in performance of the activity.

Table 2 describes the man days spent by both the selected organic and conventional farm women of on various farm activities. To quantify the farm work done by the farm women, the man days were calculated considering the time and man days spent on each farm activity. The preparatory tillage activities includes two sub activities *i.e.* removing of stalks and stubbles and ploughing. In NDZ, both the organic and conventional farming families spent 3.75 man days on ploughing. The conventional farming families spent 15.75 man days on removing of stalks and stubbles whereas organic farming families did not spend any time on removing of stalks and stubbles. Under the preparatory tillage activities, conventional farming families spent nearly five times more man days (19.50 man days) as compared to organic farming families (3.75 man days). A similar trend was observed in NTZ also. Both the organic and conventional farming families spent 1.50 man days on ploughing. The conventional farming families spent 7.88 man days on removing of stalks and stubbles whereas organic farming families did not spend any time on removing of stalks and stubbles. Under preparatory tillage activities, conventional farming families spent nearly six times more man days (9.38 man days) as compared to organic farming families (1.50 man days). However, in NHZ, both the organic and conventional farmers spent almost equal man days (2.50 and 2.63 man days, respectively) on removing of stalks and stubbles. Similarly, organic and conventional farming families spent 0.75 and one man day on ploughing. Totally, under the category of preparatory tillage both organic and conventional farming families of NHZ spent almost equal man days (3.25 and 3.63 man days). On an average, the conventional farming families of all zones spent nearly four times more man days on preparatory tillage activities than organic farming families (10.83 and 2.50 man days). The seed activities includes three sub activities *viz.*, selection of seeds, preservation of seeds and seed treatment. Both the organic and conventional farmers of NDZ spent two man days on selection of seeds in a year. The organic farmers spent more man days on preservation of seeds (3 man days) than conventional farmers (2 man days). Only the organic farmers spent two man days on seed treatment activity. In total, organic farmers spent more man days (7 man days) on seed activities as compared to conventional farmers (4 man days).

The organic farmers of NTZ spent more man days on selection of seeds and preservation of seeds (2 and 1.50 man days, respectively) as compared to conventional farming families (one man day each). Only the organic farmers spent 1.50 man days on seed treatment. Totally, organic farmers spent two and half times more man days (5 man days) on seed activities as compared to conventional farmers (2 man days).

In NHZ, both organic and conventional farmers spent one man day on selection of seeds. The organic farmers spent slightly higher time (1.13 man days) on preservation of seeds as compared to conventional farmers (0.63 man days). Only the organic farmers spent time on seed treatment (0.75 man day). In total, organic farmers spent slightly more man days (2.88 man days) on seed activities as compared to conventional farmers (1.63 man days). On an average, the organic farmers of all zones spent more man days on seed activities (4.96 man days) as compared to conventional farmers (2.54 man days).

The sowing activities includes five sub activities namely sowing, nursery raising, dibbling, transplanting and gap filling / thinning. The organic farming families of NDZ spent more man days on sowing (7.50 man days) as compared to conventional farming families (6 man days). Both the organic and conventional farming families spent almost equal number of man days on rest of the sub activities of sowing activities *viz.*, nursery raising, dibbling, transplanting, gap filling/thinning (1.50 and 1.88 man days, 3.75 and 3.50 man days, 4.50 and 4.50 man days, 0.63 and 0.66 man days, respectively).

Similarly, the organic and conventional families of NTZ spent almost equal number of man days on sub activities of sowing activities *viz.*, sowing, nursery raising, dibbling, transplanting, gap filling/thinning (4.50 and 3.0 man days, 1.25 and 1.0 man days, 1.50 and 1.88 man days, 4.50 each, 0.63 and 0.67 man days, respectively). The organic farming families of NHZ spent 3.75, 1.25, 1.50, 1.75 and 0.50 man days and conventional farming families of same zone spent 2.50, 1.25, 1.25, 1.50, 0.50 man days on sowing, nursery raising, dibbling, transplanting, gap filling/thinning.

As per the total man days, the organic farmers of NDZ spent more man days on sowing (17.88 man days) as compared to conventional farmers (16.54 man days).

**Table 2 : Man days spent by both the organic and conventional farm women of the agro climatic zones of northern Karnataka on various farm activities (n=300)**

| Farm activities | NDZ | | NTZ | | NHZ | | Combined average | |
|---|---|---|---|---|---|---|---|---|
| | OF (n=50) | CF (n=50) | OF (n=50) | CF (n=50) | OF (n=50) | CF (n=50) | OF (n=150) | CF (n=150) |
| **Preparatory tillage** | | | | | | | | |
| Removing of stalks and stubbles | - | 15.75 | - | 7.88 | 2.50 | 2.63 | 2.50 | 8.75 |
| Ploughing | 3.75 | 3.75 | 1.50 | 1.50 | 0.75 | 1.00 | 2.00 | 2.08 |
| Total man days | 3.75 | 19.50 | 1.50 | 9.38 | 3.25 | 3.63 | 2.50 | 10.83 |
| **Seed activities** | | | | | | | | |
| Selection of seeds | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.67 | 1.33 |
| Preservation of seeds | 3.00 | 2.00 | 1.50 | 1.00 | 1.13 | 0.63 | 1.88 | 1.21 |
| Seed treatment | 2.00 | | 1.50 | | 0.75 | | 1.42 | |
| Total man days | 7.00 | 4.00 | 5.00 | 2.00 | 2.88 | 1.63 | 4.96 | 2.54 |
| **Sowing** | | | | | | | | |
| Sowing | 7.50 | 6.00 | 4.50 | 3.00 | 3.75 | 2.50 | 5.25 | 3.83 |
| Nursery raising | 1.50 | 1.88 | 1.25 | 1.00 | 1.25 | 1.25 | 1.33 | 1.38 |
| Dibbling | 3.75 | 3.50 | 1.50 | 1.88 | 1.50 | 1.25 | 2.25 | 2.21 |
| Transplanting | 4.50 | 4.50 | 4.50 | 4.50 | 1.75 | 1.50 | 3.58 | 3.50 |
| Gap filling / thinning | 0.63 | 0.66 | 0.63 | 0.67 | 0.50 | 0.50 | 0.58 | 0.61 |
| Total man days | 17.88 | 16.54 | 12.38 | 11.04 | 8.75 | 7.00 | 13.00 | 11.53 |
| **After care operations** | | | | | | | | |
| Preparation of manure | | | | | | | | |
| Vermi compost | 2.50 | - | 1.25 | - | 1.25 | - | 1.67 | - |
| Green manure | 1.13 | - | 0.56 | - | 0.38 | - | 0.69 | - |
| Bio digester | 0.13 | - | 0.09 | - | 0.09 | - | 0.10 | - |
| Jeevamrutha | 0.69 | - | 0.34 | - | 0.19 | - | 0.40 | - |
| **Manure application** | | | | | | | | |
| Vermicompost | 2.63 | | 1.50 | | 1.50 | | 1.88 | |
| Farm yard manure | 3.00 | 3.50 | 2.00 | 2.50 | 1.50 | 1.50 | 2.17 | 2.50 |
| Biodigester | 1.13 | | 0.75 | | 0.75 | | 0.88 | |
| Spraying | 12.00 | 10.00 | 10.00 | 8.00 | 8.00 | 6.00 | 10.00 | 8.00 |
| Erection of bird perches/pegs | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Weeding | 28.00 | 29.75 | 18.00 | 20.00 | 16.00 | 17.50 | 20.67 | 22.42 |
| Inter cultivation | 8.00 | 9.00 | 6.00 | 6.00 | 5.00 | 5.00 | 6.33 | 6.67 |
| Total man days | 59.24 | 52.28 | 40.63 | 36.53 | 34.69 | 30.03 | 44.85 | 39.61 |
| Irrigation (Water management) | 9.50 | 10.50 | 7.50 | 8.00 | 5.00 | 5.00 | 7.33 | 7.83 |
| **Harvesting** | | | | | | | | |
| Cutting/Uprooting | 11.50 | 11.00 | 7.00 | 7.25 | 5.25 | 5.00 | 7.92 | 7.75 |
| Picking | 7.50 | 8.00 | 8.25 | 8.63 | 6.25 | 5.63 | 7.33 | 7.42 |
| Nipping of ear heads | 16.00 | 15.00 | 9.50 | 9.50 | 8.00 | 7.50 | 11.17 | 10.67 |
| Heaping | 1.88 | 2.00 | 1.50 | 1.00 | 1.00 | 1.00 | 1.46 | 1.33 |
| Total man days | 36.88 | 36.00 | 26.25 | 26.38 | 20.50 | 19.13 | 27.88 | 27.17 |
| **Threshing and processing** | | | | | | | | |
| Threshing | 4.00 | 3.00 | 2.00 | 1.50 | 1.50 | 1.50 | 2.50 | 2.00 |
| Winnowing | 4.25 | 4.50 | 3.00 | 2.50 | 2.00 | 1.50 | 3.08 | 2.83 |
| Sieving | 3.50 | 3.00 | 3.00 | 3.00 | 2.00 | 1.50 | 2.83 | 2.50 |
| Drying | 2.00 | 1.46 | 1.50 | 1.46 | 0.69 | 0.88 | 1.40 | 1.26 |
| Cleaning | 6.00 | 4.75 | 2.50 | 2.50 | 1.25 | 1.38 | 3.25 | 2.88 |
| Storage | 2.00 | 1.50 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.17 |
| Total man days | 21.75 | 18.21 | 14.00 | 11.96 | 9.44 | 7.75 | 15.06 | 12.64 |
| **Marketing** | | | | | | | | |
| Weighment and bagging | 2.00 | 2.00 | 1.50 | 1.25 | 1.00 | 1.00 | 1.50 | 1.42 |
| Transportation and marketing | 4.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.33 | 3.00 |
| Total man days | 6.00 | 5.00 | 4.50 | 4.25 | 4.00 | 4.00 | 4.83 | 4.42 |
| Preparation of value added products | 11.25 | 10.00 | 5.00 | 5.00 | 5.00 | 5.31 | 7.08 | 6.77 |

Similarly, the organic farming families of NTZ and NHZ spent more man days (12.38 and 8.75 man days, respectively) as compared to conventional farming families (11.04 and 7 man days). On an average, the organic farming families of all three zones spent more man days (13 man days) on sowing than conventional farming families (11.53 man days).

The after care operations include the sub activities *viz.*, preparation of manure (vermicompost, green manure, bio digester, jeevamrutha) manure application (vermi compost, farm yard manure, bio digester manure), spraying, erection of bird perches/pegs, weeding and inter cultivation. Only the organic farmers of all three zones *viz.*, NDZ, NTZ and NHZ devoted 4.45, 2.24 and 1.91 man days, respectively on preparation of manure activity. Other sub activities such as vermi compost and bio digester slurry application were also exclusively performed by only the organic farmers of all three zones. The organic farming families of all three zones *viz.*, NDZ, NTZ and NHZ spent more man days (12, 10 and 8 man days, respectively) on spraying activity as compared to conventional farming families of three zones (10, 8 and 6, respectively). In contrast the conventional farming families of three zones, NDZ, NTZ and NHZ spent more man days on weeding activity *viz.*, 29.75, 20 and 17.50 man days, respectively as compared to organic farming families of all three zones (28, 18 and 16 man days).

In NDZ, the conventional farming families spent more man days (9 man days) on inter cultivation activity as compared to the organic farming families (8 man days). However, both organic and conventional farming of NTZ and NHZ families spent six and five man days, respectively on inter cultivation activity. In total, the organic farming families of all three zones spent more man days (59.24, 40.63 and 34.69 man days) on after care operations in comparison with the conventional farming families (52.28, 36.53 and 30.03 man days). On an average, the organic farming families devoted higher man days (44.85 man days) on after care operations as against the conventional farming families (39.61 man days).

Further, it is noted from the table that the conventional farming families of both NDZ and NTZ spent more man days (10.5 and 8 man days) on irrigation as compared to organic farming families (9.5 and 7.5 man days). However, both organic and conventional farmers of NHZ spent five man days on management of water activity under irrigation. On an average the organic and conventional farming families spent 7.33 and 7.83 man days on irrigation related activities.

The harvesting activity includes the sub activities *viz.*, cutting/uprooting, picking, nipping of ear heads and heaping. The organic and conventional farming families of NDZ spent highest man days on nipping of ear heads (16 and 15 man days, respectively) among the sub activities of harvesting followed by cutting /uprooting (11.50 and 11 man days), picking (7.50 and 8.0 man days), heaping (1.88 ad 2.0 man days).

The organic farming families of NTZ spent highest man days on nipping of ear heads (9.50 man days) among the sub activities of harvesting followed by picking (8.25 man days), cutting/uprooting (7.0 man days) and heaping (1.50 man days). Similarly, the conventional farming families of NTZ spent highest on nipping of ear heads (9.50 man days) followed by picking (8.63 man days), cutting/uprooting (7.25 man days) and heaping (1.0 man days).

The organic and conventional farming families of NHZ spent highest man days on nipping of ear heads (8.0 and 7.5 man days) followed by picking (6.25 and 5.63 man days), cutting/uprooting (5.25 and 5.0 man days) and heaping (one man day each).

In total, organic and conventional farmers of NDZ spent almost equal number of man days on harvesting activities (36.88 and 36 man days, respectively). A similar trend was seen in NTZ also, where both the organic and conventional farmers spent 26.25 and 26.38 man days, respectively on harvesting. In NHZ, more number of man days (20.50 man days) were spent by the organic farming families as against 19.13 man days by conventional farming families. On an average the organic and conventional farming families of three zones spent 27.88 and 27.17 man days on harvesting activity.

The threshing and processing activity includes the sub activities *viz.*, threshing, winnowing, sieving, drying, cleaning and storage activities. Among the threshing and processing activities, the organic farming families of NDZ spent highest time on cleaning (6 man days) followed by winnowing (4.25 man days), threshing (4 man days), sieving (3.50 man days), drying and storage (2 man days). The conventional farming of NDZ spent highest man days on cleaning (4.75 man days) followed by winnowing (4.50 man days), threshing and sieving (3.0 man days), storage (1.50 man days) and drying (1.46 man days).

The organic farming families of NTZ spent almost more number of man days on winnowing and sieving (3

man days) followed by cleaning, threshing, and storage (2 man days) and sieving (1.50 man days). The conventional farming families spent three man days on sieving, 2.5 man days (winnowing and cleaning), 1.50 man days (threshing), 1.46 man days (drying), one man day (storage).

The organic farming families of NDZ spent more number of days (21.75 man days) on them as against 18.21 man days spent by the conventional farming families. Similarly, the organic farming families of NTZ spent more number of days (14 man days) on threshing and processing activities as against 11.96 man days spent by the conventional farming families. The work load of the organic farming families in NHZ in terms of man days was more (9.44 man days) as against 7.75 man days spent by the conventional farming families. On an average the organic farmers of all three zones spent more man days (15.06 man days) on threshing and processing activities as compared to conventional farming families (12.64 man days).

The marketing of farm produces includes the sub activities such as weighment and bagging, transportation and marketing. The organic and conventional farming families of NDZ spent six and five man days, respectively on marketing. The organic and conventional farming families of NTZ spent 4.50 and 4.25 man days on marketing. In NHZ, both the organic and conventional farming families spent four days on marketing. On an average the organic and conventional farming families spent 4.83 and 4.42 man days, respectively on marketing.

The organic and conventional farm women of NDZ spent 11.25 and 10 man days, respectively, while, the organic and conventional farm women of NTZ and organic farm women of NHZ spent five man days on preparation of value added products. However, 5.31 man days were spent of preparation of value added products by conventional farm women of NHZ.On an average, the organic and conventional farming families of three zones spent 7.08 and 6.77 man days, respectively on preparation of value added products. Further, the table revealed that the overall work load of farm activities on NDZ farmers in terms of man days was higher than that of NTZ and NHZ farming families. Within each zone, the work load of organic farming families was higher as compared to conventional farming families.

Table 3 indicated the significant mean difference between the man days spent by the organic and conventional farming families of the agro-climatic zones of northern Karnataka. The work load of conventional farm women of NDZ and NTZ (in terms of average man days) with respect to preparatory tillage activities was higher (19.50 and 9.38 man days) when compared to organic farmers of the respective zones (3.75 and 1.50, respectively) and was found to be significant at one per cent level. However, the organic and conventional farm women of NHZ spent almost equal man days (3.25 and 3.63 man days) on preparatory tillage activities and hence, no difference was observed between them in their time devotion.

The organic farm women of NDZ spent more man

**Table 3 : Mean differences between the man days spent by the organic and conventional farming families of agro-climatic zones of northern Karnataka (n=300)**

| Farm activities | NDZ | | | NTZ | | | NHZ | | | Combined average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OF (n=50) | CF (n=50) | t value | OF (n=50) | CF (n=50) | t value | OF (n=50) | CF (n=50) | t value | OF (n=50) | CF (n=50) | t value |
| Preparatory tillage | 3.75 | 19.50 | 12.52** | 1.50 | 9.38 | 12.02** | 3.25 | 3.63 | 1.58 NS | 2.83 | 10.83 | 9.46** |
| Seed activities | 7.00 | 4.00 | 6.70** | 5.00 | 2.00 | 9.48** | 2.88 | 1.63 | 7.90** | 4.96 | 2.54 | 8.90** |
| Sowing activities | 17.88 | 16.54 | 2.76** | 12.38 | 11.04 | 3.84** | 8.75 | 7.00 | 5.53** | 13.00 | 11.53 | 4.47** |
| After care operations | 59.24 | 52.28 | 3.49** | 40.63 | 36.53 | 3.04** | 34.69 | 30.03 | 4.14** | 44.85 | 39.61 | 3.53** |
| Irrigation (Water management) | 9.50 | 10.50 | 1.95NS | 7.50 | 8.00 | 1.25NS | 5.00 | 5.00 | 0.00NS | 7.33 | 7.83 | 0.70NS |
| Harvesting | 36.88 | 36.00 | 0.76 NS | 26.25 | 26.38 | 0.17 NS | 20.50 | 19.13 | 1.93 NS | 27.88 | 27.17 | 0.89 NS |
| Threshing and processing | 21.75 | 18.21 | 6.94** | 14.00 | 11.96 | 5.10** | 9.44 | 7.75 | 5.31** | 15.06 | 12.64 | 6.01** |
| Marketing | 6.00 | 5.00 | 1.96NS | 4.50 | 4.25 | 1.08NS | 4.00 | 4.00 | 0.00NS | 4.83 | 4.42 | 1.69NS |
| Preparation of value added products | 11.25 | 10.00 | 1.76NS | 5.00 | 5.00 | 0.00NS | 5.00 | 5.31 | 1.28NS | 7.08 | 6.77 | 0.43NS |

** indicates significance of value at P=0.01 NS=Non-significant

days on seed activities (7 man days), sowing activities (17.88 man days), after care operations (59.24 man days), threshing and processing (21.75 man days) against conventional farm women of the same zone (4, 16.54, 52.28 and 18.21 man days). The mean differences between the groups were also found to be statistically significant at one per cent level.

The organic farm women of NTZ spent more man days on seed activities (5 man days), sowing activities (12.38 man days), after care operations (40.63 man days), threshing and processing (14 man days) against conventional farm women of the same zone (2.00, 11.04, 36.53 and 11.96 man days). The mean differences between the groups were also found to be statistically significant at one per cent level.

The organic farm women of NHZ spent more man days on seed activities (2.88 man days), sowing activities (8.75 man days), after care operations (34.69 man days), threshing and processing (9.44 man days) against conventional farm women of the same zone (1.63, 7.00, 30.03 and 7.75 man days). Statistically the mean differences between the groups were found be significant at one per cent level. Further, the table revealed that the organic farming families spent comparatively more man days with respect to other farm activities *viz.*, irrigation, harvesting, marketing, preparation of value added products than conventional farm women. Statistically it was noticed that there was no difference between the groups.

It was noticed from the combined data of all three zones that the work load of organic farm women with respect to seed activities (4.96 man days), sowing (13 man days), after care operations (44.85 man days) and threshing and processing activities (15.06 man days) was more when compared to conventional farm women (2.54, 11.53, 39.61, 12.64 man days, respectively) and was found to be statistically significant at one per cent level. But higher involvement of conventional farm women was found with respect to preparatory tillage activities (10.83 man days) to that of organic farm women (2.83 man days) and was found to be statistically significant. The work load of both organic and conventional farming families was almost equal with respect to irrigation (7 man days), harvesting (28 man days), marketing (4 man days) and preparation of value added products (7 man days). This indicated that no variation in the mean differences between the organic and conventional farming families. Similar work related to the present investigation was also done by Desai and Sumangala (2013).

## Conclusion:

Women are involved in the activities of integrated crop management system. Organic farming needs manpower, when the manpower was studied gender wise, the amazing fact revealed was that the women's contribution is greater or equal to men. The workload load of organic farm women was more compared to conventional farm women.

Authors' affiliations :

**P.R. SUMANGALA,** Department of Family Resource Management, University of Agricultural Sciences, DHARWAD (KARNATAKA) INDIA

## REFERENCES

**Desai, Rajeshwari** and Sumangala, P.R. (2013). Determinant factors of organic farming adoption in the selected northern agro-climatic zones of Karnataka. *Asian J. Home Sci.*, **8** (2): 590-593.

**Kang, B.** (2007). Women lead the way back to organic farming. *Soc. Welf.*, **54**(5): 11.

**Navdanya** (2006). Seed Sovereignty, Food Sovereignty and Water Sovereignty. Annual Report: 2005-2006. New Delhi, India.

**Pionetti, C.** (2002). Small change crops, the marginalisation of women farmers' priorities. *Leisa India,* **4**(4):21-22.

**Rebecca, E.** and Jutamart, C. (2002). Organic farming and gender roles in Northern Thailand. *Leisa India*, **4**(4):25-26.

**Reddy, N.** (2008). Ensuring livelihood for poor farmers. *Leisa India,* **10**(3):29.

**Santha, G.** and Perumal, G. (1998). Participation of farm women in seed management with special reference to rice. *J. Extn. Edn.*, **9** (2) : 2021- 2024.