

## ORGANIC FARMING AND QUALITY OF FOOD

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### ABSTRACT

*Organic farming is becoming increasingly popular all over the world. Many consumers are feeling disillusioned from chemically produced foods and are making efforts to buy organic. Extensive use of chemicals and anti-biotics in inorganic food production technology compelled the health conscious people to explore and support organic farming methods in agriculture. In this context, this study was undertaken to analyse the Organic Farming and Quality of Food produced in Shimoga district of Karnataka. The survey was undertaken for collecting primary data from 420 equal number of organic and inorganic paddy farmers during 2011-2012. The study found that the illiterate and primary education category, the percentage of respondents is more among inorganic farmers compared to their counterparts in the organic farmers. It is quite natural that the knowledgeable people are more inclined towards the innovative farming practices added to increasing health awareness also encourages people to go for organic farming. The most important finding is that higher community people are more inclined towards organic farming and backward people like scheduled castes (SC) and scheduled tribes (ST) are still practising inorganic farming. It is a fact that the upper caste people have more awareness about the negative effects of high external input based and unsustainable inorganic farming, hence large proportion of upper caste farmers are switching over to organic farming than the lower caste farmers. Growing interest in the organic agriculture is increasing consciousness about health hazards associated with agro-chemicals. Finally, 95.2 per cent of the respondents expressed the opinion that they shifted from inorganic to organic paddy to produce the health food, however majority of them are growing organic paddy for their self-consumption.*

### Background

Human communities, no matter how sophisticated, could not ignore the importance of agriculture. To be far farm dependable sources of food was to risk malnutrition and starvation hence, the fundamental basis of community is agriculture, tillage of the soil (Baha, 1912). Agriculture is one of human kind's most basic activities because all people need to nourish themselves daily. History, culture, and community values are embedded in agriculture. The principles apply to agriculture in a broad sense, including the way people tend soils, water, plants and animals in order to produce, prepare and

distribute food and the other goods. Hence, the national food security, nutritional security, maintenance of soil health, environment safety, ecological balance, biodiversity and quality produce (Ramanathan 2006) should become very important components in agricultural policy in order to increase the production and productivity. Expanding proportion of consumers regard food produced through "Organic" or biological means of safer to eat and methods used to produce it as less polluting, better for the soil, respecting the welfare of animals and more hospitable to wildlife than food produced through conventional (Inorganic) means" (OECD,

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2001c). Organic agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and individual. In this background, the present paper focuses on the adoption of organic farming and quality of food in Shimoga district of Karnataka.

Since the introduction of green revolution technology, India not only became self-sufficient in foodgrains but also became the exporter of food and other agro-based products. However, the consumption of chemical fertilisers (N.P.K) has been increasing in India during the past thirty years at a rate of almost half a million tonnes on an average a year. It was only 13.13 kg/ha in 1970-71, 31.83 kg/ha in 1980-81 and 74-81 kg/ha in 1995-96. Further, it shot up to about 96 kg/ha during 1999-2000 (Narayanan, 2005). Hence, both increased area and use of chemical fertilisers and pesticides contributed for increased foodgrain production. Under green revolution, it is a known fact that the consumption of chemical fertilisers increased seven-fold, pesticides by 375 times while the food production had just doubled during the first 20 years of the launch of Green Revolution in India (Palaniappan and Annadurai 1994). Meanwhile, increased use of chemicals under intensive cultivation disturbed the harmony existing among soil, plant and microbial population (Ghosh 1999). More importantly, the intensity of their use in a few regions and a few crops are causes of serious concern to human health, soil, water, environment and thus to the sustainability of agriculture production in the country (Narayanan, 2005).

The damage caused through agro-chemical pollution to environment and human health, directly and through the human food chain and sustainable agriculture and food security is irreparable (Guansoon, 1998; Thakur et al., 2003; Vepa et al., 2004). In many cases, over 90 per cent of the inorganic produce of vegetables, foodgrains, fruits, milk etc., produced under Inorganic Farming System (Green Revolution) contains poisonous agro-chemical

residues harmful and unsuitable for consumption (Paroda. 2001). Obviously, the present chemical farming (Inorganic farming) created mismatch between resources availability and consumption, resulted in decline in water table, soil health degradation, useful birds elimination, appearance of new weed bio-types, insect-pest and disease ultimately affecting the profitability of farming offer an important option which not only improve the resource but also ensures their rational utilisation (Gill and Sarlach, 2006). Thus, the Green Revolution of yester years has left farmers of today searching for something better, in addition, farmers are pursuing chemical supplements to push crop yield, which is only harming the earth. Farmers and communities faced many socio-economic problems, particularly small farmers who found themselves increasingly marginalised due to lack of access to external inputs. Their soil is depleted from the constant application of harsh and harmful chemicals. A placard informed farmers that in reality organic crops yield 70 per cent (Deccan Herald, 2 December, 2008). In addition to this, the low-tech sustainable agriculture is increasing crop yield on poor farmers across the world, often by 70 per cent or more. This has been achieved by replacing synthetic chemicals in favour of natural pest control and natural fertilisers (New Scientist, 2001).

Thus, the effect of green revolution (Inorganic Farming System) advocated the necessity of organic farming because of over-exploitation of the natural resources (land, water and vegetation). Therefore, to keep the natural resources afresh and to meet the national goal, organic farming using manures, legumes, crop residue, off-farm organic wastes and bio-pesticides enable the country to produce the foodgrains sufficiently along with the conservation of resources. In this way, extensive use of chemicals and anti-biotic inorganic food production technology compelled the health conscious people to explore and support organic farming methods in agriculture. In this context,

this study was undertaken to analyse the Organic Farming and Quality of Food produced in Shimoga district of Karnataka.

### Methodology

The study is based on the following specific objectives :

- ❖ To examine the quality of food produced under organic and inorganic farming.
- ❖ To compare the quality of paddy crop produced under organic farming system in Shimoga district of Karnataka.

The study used primary and secondary data. Primary data were collected from the respondents practising organic and inorganic farming in the process of paddy production. The field survey was conducted during 2012-13 kharif season in Shimoga district of Karnataka. Four hundred and twenty respondents were selected from the study area. Of them, 210 respondents are organic and remaining are the inorganic farming respondents (210). The relevant secondary data for this study were collected from the various journals, reports, unpublished theses and reports published by Central and State Government authorities. In addition, secondary data were also collected from the Organic Farmers Association affiliated to Karnataka Savayava Krushi Mission and Department of Agriculture, Government of Karnataka helped in identifying the organic farmers. The farmers who are using only organic, biodynamic, or natural inputs in the production of paddy termed as organic paddy farmers. Inorganic farmers are the farmers using chemical fertilisers and pesticides along with or without applying organic inputs in the process of paddy production.

## RESULTS AND DISCUSSION

### Quality of Organic and Inorganic Food

Many consumers are feeling disillusioned from chemically produced foods and are making efforts to buy organic. Their reason may include a concern for their families, the health of the

environment, and the increase in taste and nutritional value found in organic products. Inorganic agriculture uses a wide range of synthetic chemicals that inevitably leave residue in the produce: There are more than 130 different classes of pesticides containing some 800 entries (Plimmer, 2001), pesticides residues enter the food chain via four main routes; on-farm pesticide use, post-harvest pesticides use (accounts for the largest part), pesticide use on imported food and cancelled pesticides that persist in the environment (Kuchler et al., 1996) According to WHO estimates, approximately one million people are taken ill every year with pesticides poisoning and up to 20,000 of them die in agony and a variety of reproductive health impacts in women and pesticide exposure. Increased incidence of miscarriage, birth malfunctions, still births and delayed pregnancy are documented among women agricultural workers and wives of men employed in pesticide mixing and spraying (Ranson, 2002). This is mainly due to overuse or misuse of chemicals, particularly synthetic insecticides, fungicides, herbicides, fertilisers, plant growth regulators etc., that resulted in undesirable side effects not only in the agro-ecosystems, but also on human health and life systems of beneficial fauna and microorganisms. Further, the Green Revolution's gains have come at the cost of extensive environmental degradation and considerable health problems due to exposure to agro-chemicals. Thus, toxic residues poison the body slowly causing intensive damage to human body; the food products containing toxic pesticides residues cause heart disease, brain, kidney and liver damage and even cancer, limb deformities and poor eyesight.

In the world, nowadays, food safety is receiving more attention than ever before not only in developed countries but also in developing countries, by policy makers, health professionals, the food industry, the biomedical community and last but not least, the public. The preference for organic food has been associated

with multiple factors that, in general, reflect an increased interest towards personal health, animal welfare and environmental protection (Makatouni, 2002). Health-related issues seem to assume greater importance than other concerns and notions about food safety and are fundamental for purchasing organically grown food (Magnusson et al., 2003; Lohr, 2001; Harper and Makatouni, 2002; Beharrell and Mac Fie, 1991). A study of data collected by the US government found pesticide residues on 23 per cent of organic fruits and vegetables and nearly 75 per cent of conventionally grown produce, through the residues in all the samples well below statutory limits (Baker et al., 2002). A study of three apple production systems (organic, integrated, conventional) in Washington State assessed their impact on some factors in all three dimensions of sustainability. They concluded that organic production systems were more profitable, had a lower environmental impact and produced sweeter and less tart apples (Regenanold et al., 2001).

There is a widespread belief that organic food is substantially healthier and safer than inorganic food and consumers are willing to pay significant price premium to obtain it. Organic agriculture uses almost exclusively biological and natural materials and processes to produce food. The practice aims to protect human health and conserve or enhance natural resources, with the goal to presume the quality of the environment for future generations while being economically sustainable. Hence, farmers are converting to organic methods for a variety of reasons but the most important have to do with a general unease with the health and environmental impacts of conventional practice, increasing disease and pest problems and the expectation that organic farming methods may be more profitable (Blobsaum, 1983; United States GAO, 1990; MacRae et al. 1990). A study conducted in USA on the nutritional value of both organic and conventional food found that consumption of the former is healthier. Apple,

peas, potatoes, corn, wheat and baby foods were analysed to find out 'bad' elements such as aluminum, cadmium, lead and mercury, also 'good' elements like boron, calcium, iron, magnesium, selenium and zinc. The organic food in general had more than 20 per cent less of the bad elements and about 100 per cent more of the good elements (Narayanan, 2005).

Singh and Dinesh Kumar (2007) examined organic farming vis-à-vis human health and environment. The study revealed that organic farming was superior to conventional farming or chemical farming in terms of pollution-free environment, good quality of food and health: conventional farming produced food and fodder by using chemical fertilisers and pesticides, which contaminated the food, health hazards and environment pollution. Besides, organic farming produces good quality of food, by using different plant nutrition, weed management, pest and disease management so that eating of organic food considerably reduces the heart attacks, strokes, cancer, bowel cancer and many other diseases. However, Faido Magkos et al., (2006) reported the critical and transparent overview of organic food safety to identify potential drawbacks in organic food production. The results revealed that food safety of organic verses conventional produce is difficult because of divergent conditions prevailing in terms of soil, water and climatic conditions. Organic food is not free from pesticides. However, fruits and vegetables grown under organic farming can be found with much less agrochemical residues than their conventional alternatives. Besides, the health risk associated with dietary exposure to agrochemicals remains to be evaluated. Organically cultivated nitrophilic vegetables viz. leafy root and tuber were found with lower content than the respective conventional ones. Pragya Agarwal et al., (2007) compared the quality characteristics viz. differences in physical characteristics, nutrient composition, cooking quality and sensory quality in fresh green peas grown by organic, inorganic and integrated

methods. The study found that no significant difference was observed in terms of pod length. However, organically grown peas scored higher for total sugar, sweetness, colour, flavour and taste, besides in terms of minerals, organically grown peas had higher copper and zinc levels as compared to inorganically grown peas and peas grown by integrated method of cultivation.

Thakur et al., (2003) examined the comparative economics of organic produce or OFS vis-à-vis inorganic produce or IFS at the instances of ICAR in the backward and tribal hilly area of Himachal Pradesh, India. The study selected 100 farmers from different villages and 100 traders and 100 consumers from different local and national markets through suitable sampling techniques. The study revealed that the poisonous and toxic inorganic chemical inputs used under IFS turned out to be highly destructive, injurious and harmful causing large scale polluting and poisoning of soil, water, air ecosystem, agro-ecosystem, environment, plants and crop produce which in turn, induce many deadly diseases including cancer. Besides, OFS using organic inputs is a solution for the ills and problems of IFS as it is found to improve constantly the soil fertility, yields and production of crops and sustainability of agriculture in the long run. The organic produce or organic food is best for health; more nutritious of better quality, free and safe from toxic inorganic chemical residues, looks fresh and good and tastes delicious. Hence, the health conscious buyers and consumers are buying organic produce at very high premium prices which are generally 3-4 times higher depending upon products.

In Japan, Yukio Yokoi (2002) conducted a similar study on the policy development on organic agriculture and future perspectives. The study revealed that the public are greatly concerned about food safety issues owing to the recent incidents of mad cow disease (Bovine Spongiform Encephalopathy) and the detection of excess pesticide residues and the use of prohibited pesticides. Hence, policies on organic

agriculture and organic food have been developed in terms of the "JAS Organic" accreditation system and technological support of organic farming. There was a potential for further shift to organic agriculture, the government has given higher priority to consumers, is to provide more administrative as well as technical support for organic agriculture.

Wiebel et al., (1999) assessed fruit quality in golden delicious apple from five organic farms and five farms using integrated production methods. They found that in terms of taste, firmness, dietary fiber and phenolic compound contents, fruits from organic farms outperformed the others. Hogstad et al., (1997) examined sensory quality and chemical composition of carrots from designed trials and from organic and conventional farms. The data were analysed using principal components and partial least squares regression to identify the main factors responsible for variation in quality. One of the most important factors was fertilisers application. Carrots grown with fertiliser, low levels of mineral fertiliser or with organic fertiliser, had more total sugars, stronger flavour but less crispness, protein and carotene than carrots grown with high levels of mineral fertiliser. Dudi et al., (2005) examined the influence of four levels each of nitrogen and FYM on fruit quality and yield at Ghursal village of Hissar district in Haryana. The study found that individual application of 750gr N and 100-150 kg of FYM/plant significantly increased the total soluble solids, sugars, ascorbic acid juice content and fruit yield, besides, the highest level of N resulted reduced quality of fruits but rind thickness increased with higher levels of applied N. The maximum fruit yield (181 kg/ tree) was recorded with the application of nitrogen 750 gram/ tree during 1999 whereas it was 175 kg/ plant with the addition of 150 kg FYM in the same year because of application of nitrogen and FYM in combination improved the quality as well as the yield of fruits.

Anecdotal evidence suggests, from the above reviewed literature, that food produced using organic methods tastes better and contains a better balance of vitamins and minerals than inorganically produced food. Marilyn Lynn (FP female primary) expressed that food as an opportunity to connect to the earth and to other people. "Food is a common ground for everyone. We all need to eat and we all recognise and appreciate when we are able to eat food that is healthy and tasty and that we know was raised in an economically and socially just way. We are continually reminded, because of the diversity of folk we see at the farmers; that we do all share this common bond" (Lynn, 2003). Though, very few studies contradict that the foodgrains produced under organic farming also contaminated compared to foodgrains produced under inorganic farming. In fact, more number of studies revealed that products produced under organic farming are healthy and tastier than the products produced in inorganic farming. Several forms of organic farming are being successfully practised in diverse climates, particularly in rainfed, tribal, mountains and hilly areas of the country. Hence, it is necessary to promote organic farming from the point of view of healthy food and healthy society.

### **The Quality of Paddy Crop Produced Under Organic Farming System**

Organic farming has been a popular form of sustainable agriculture all over India. Karnataka State is also bestowed with divergent climatic and soil types spread across agro-climatic zones. The physical features of Karnataka include coastal plains, Western Ghats and plateau enabling it to grow a variety of crops. The State is also known for its excellence in horticultural crops and animal husbandry. In addition, many farmers of the State are pioneers in organic agriculture and developed many different systems of cultivation through indigenous knowledge base. There are many opportunities for promotion of organic farming in Karnataka. In this background,

Shimoga district of Karnataka was selected for the study where large number of farmers adopted organic farming practices for growing crops. Hence, the farmers growing paddy under organic farming were selected for the study.

Socio-economic features of the farm families in general and heads of the families in particular influence their farming practices in growing a crop and the level of their crop yield. Hence, socio-economic features that are relevant to crop production and adoption of organic farming decision were chosen for the analysis. The socio-economic variables considered for this purpose include age composition, level of education, size of the family, mean values of respondents' landholdings and caste-wise distribution of the respondents. The data pertaining to these variables were collected from the respondents' family with special emphasis on the heads of the family. The head of the family here need not necessarily be the senior member of the family but the person who plays a vital role in decision-making process.

Age is one of the important demographic features of the respondents which will influence on the decision-making style in farming practices. The age of the respondents ranges from 22 to 82 years and thus respondents were categorised under three groups viz young farmers (<35 years), middle aged farmers (35-60 years) and old age farmers (>60 years). Frequency distribution of the farmers across the different age groups is given in Table 1. Distribution of the farmers across the different age groups is given separately for organic and inorganic farmers. Majority of the farmers in the overall category belong to the middle age (268) followed by the young age (102). Middle age farmers account for 63.8 per cent of the total respondents in this category. The disaggregated data for the organic and inorganic farmers are 69.1 and 58.6 per cent, respectively.

Education is a key indicator of the knowledge level of the respondents which in

turn will influence on the decision- making process in the adoption of farming practices. Respondents with higher level of education will be the pioneers in the adoption of innovative farming practices. Therefore, data on the education level of the respondents were collected and the results are given in Table 2. The education level of the respondents is mainly classified into four categories viz. illiterates, respondents with primary, secondary and college education. The distribution of the organic and inorganic respondents across these different levels of education is given in this Table. In the overall category, highest percentage of the respondents were having education up to the college level (32.4) and it was followed by the primary (32.1) and then secondary education (28.4). Organic respondents were found to be having relatively higher level of education compared to the inorganic farmers. Respondents with college level of education are considerably more among the organic farmers (45.2) compared to the inorganic farmers (19.5). Similar difference could be found in the secondary education also. In the illiterate and primary education category, the percentage of respondents is more among inorganic farmers compared to their counterparts in the organic farmers. It is quite natural that the knowledgeable people are more inclined towards the innovative farming practices, added to this, increasing health awareness is also encouraging the people to go for organic farming.

Caste is one of the indicators of social status of an individual. It influences on decision-

making status of an individual. Therefore, data were collected from the respondents about the caste status of their family and given in Table 1. The caste of the respondents is mainly categorised into four groups SC, ST, OBC and General category. The distribution of organic and inorganic respondents across the different categories is given separately for organic and inorganic farming respondents. In the overall zone category, out of 420 total respondents, 300 respondents are found to be belonging to OBC followed by 74 belonging to General and 32 belonging to SC and remaining are ST (12) category. The significant feature of results is that general category respondents account for higher share among the organic farmers (31 per cent) compared to their share is relatively less in inorganic farming group (4.2 per cent) whereas SC and ST category people account for higher percentage in the inorganic farming group compared to the organic farming group. It indicates that caste is arranged in hierarchical order, the higher community people more inclined towards organic farming compared to the backward people like SC and ST.

The most important finding of this result is that higher community people are more inclined towards organic farming and backward people like SC and ST are practising inorganic farming. Thus, it is a fact that the upper caste people are more aware about the negative effects of high external input based and unsustainable inorganic farming, hence large proportion of upper caste farmers are switching over to organic farming than the lower caste farmers.

**Table 1 : Socio-economic Features of the Organic and Inorganic Respondents**

S. No.	Particulars	Distribution of Respondents		
		Organic Farmers	Inorganic Farmers	Overall
1	Age of the Respondents			
	i) Young Farmers(<35 years)	42(20.0)	60(28.6)	102(24.3)
	ii) Middle Age Farmers	145(69.0)	123(58.6)	268(63.8)
	iii) Old Age Farmers	23(11.0)	27(12.8)	50(11.9)
	Total	210(100.0)	210(100.0)	420(100.0)
2	Education			
	i) Illiterate	03(1.4)	27(12.9)	30(7.1)
	ii) Primary Education	43(20.5)	92(43.8)	135(32.1)
	iii) Secondary Education	69(32.9)	50(23.8)	119(28.4)
	iv) College Education	95(45.2)	41(19.5)	136(32.4)
	Total	210(100.0)	210(100.0)	420(100.0)
3	Caste of the Respondents			
	i) SC	06(2.9)	26(12.4)	32(7.6)
	ii) ST	04(1.9)	10(4.8)	14(3.4)
	iii) OBC	135(64.2)	165(78.6)	300(71.4)
	iv) General	65(31.0)	09(4.2)	74(17.6)
	Total	210(100.0)	210(100.0)	420(100.0)
4	Size of Landholdings			
	i) Small Holdings(<2 hectares)	92(43.8)	128(60.9)	220(52.4)
	ii) Large Holdings(>2 hectares)	118(56.2)	82(39.1)	200(47.6)
	Total	210(100.0)	210(100.0)	420(100.0)
5	Size of Family			
	i) Small Family	97(46.2)	95(45.2)	192(45.7)
	ii) Medium Family	99(47.1)	103(49.1)	202(48.1)
	iii) Large Family	14(6.7)	12(5.7)	26(6.2)
	Total	210(100.0)	210(100.0)	420(100.0)

Figures in parentheses are percentage to total.

In rural economy, land is one of the important socio-economic indicators. Size of landholding influences the cropping pattern, farming practices and adoption of modern technology. Data relating to the size of landholdings were collected from the respondents. Based on the size of landholdings, the sample respondents are broadly categorised into small farmers (< 2 hectares) and large farmers (>2 hectare). The frequency distribution of respondents across the different landholding category is presented in the Table. In the overall size category, 52.4 per cent of respondents are in small size category and the remaining 47.6

per cent are in large category. Considerably higher percentage of organic respondents (56.2) are in the large size holdings compared to the inorganic respondents (39.1). Small size of holding is relatively more among the inorganic respondents (60.9 per cent) compared to the organic respondents (43.8 per cent). Large farmers are relatively more inclined towards the organic farming compared to the small farmers.

Size and composition of family is another demographic feature that could influence on the farming practices. Data relating to number of members in the family were collected from the



respondents. The size of respondents' family is classified into three categories viz. small family (<4 members), medium family (between 5 to 8 members) and big family (>9 members). The frequency distribution of respondents' families across the different size of families' is given separately for organic and inorganic farmers in the Table. The overall zone category is the pooled data of organic and inorganic respondents. In the overall zone category, majority of the respondents belong to medium families (202) followed by small (192) and large families (26). There is no much difference between organic and inorganic respondents' families with respect to their distribution across the different size category. Adoption of organic farming system has nothing to do with the family size of the respondents.

The problems associated with inorganic farming system or attractive features of organic farming system; influence the farmers to convert the inorganic farming system into organic farming system. Those who have a holistic understanding of organic farming are likely to be motivated by local benefits such as improved soils, healthy food, fewer toxic chemicals, and self-reliance with inputs. Moreover, economic objectives are not the only motivation of organic farmers; their intention is often to optimise land, animal and plant interactions, preserve natural nutrient and energy flows and enhance biodiversity. In this context, information was collected from the respondents about the quality of products produced under organic farming system. For this purpose, eight factors, which could influence the respondents to adopt the organic farming, were identified based on the experience gained through the discussion with the progressive farmers, agricultural scientists as well as from the review of existing literature.

The factors which could motivate the respondents to adopt the organic farming include; i) improving soil fertility, ii) food of good quality, iii) production of crops for the self-

consumption, iv) avail of the benefit of price premium, v) avail of the benefit of government subsidy, vi) utilise the locally available resources, vii) reduce the problems of pests and diseases, and viii) reduce the explicit cost of cultivation. The information was collected from the respondents and results are consolidated and presented in Table 2. An individual farmer may be motivated by several factors therefore, the sum of the column may not be equal to the sample size.

Reckless application of agro-chemicals and pesticides leads to decline in soil quality over the years which motivated the respondents to convert the inorganic farming system into organic farming system. In Shimoga district, 199 respondents expressed the opinion that declining soil fertility in the inorganic farming is one of the factors that motivated the farmers to switch over from inorganic to organic farming. Another major motivational factor that leads to growing interest in the organic agriculture is the increasing consciousness about health hazards associated with agro-chemicals. Thus, the 95.2 per cent of the respondents expressed the opinion that they have shifted from inorganic to organic paddy to produce the health food. Majority of them are growing organic paddy for their self-consumption.

Agricultural products produced under organic farming are receiving higher price premium than the products produced under inorganic farming in the market. About 81 per cent of respondents expressed the opinion that the higher price to organic products was one of the factors that motivated them to convert their inorganic farming methods into organic farming methods. Government subsidy is another important factor that could largely motivate the respondents to switch over from inorganic farming system into organic farming system. In the district, majority of the farmers adopted the organic farming system to avail of the benefit of the government subsidy. It is more evident in district where 85.7 per cent of the respondents

converted their inorganic farms into organic farms.

Organic farming has the potential to utilise the locally available resources and to provide benefits in terms of environmental protection, conservation of non-renewable resources. Hence, utilisation of locally available resource would influence the farmers. The

general opinion among the farmers of this district is that the crops grown under inorganic farming are more susceptible to pests and diseases and preventing them becomes very difficult task whereas organic farming reduces the pests and diseases risk and this opinion also is one of the reasons for the conversion of inorganic into organic paddy.

**Table 2: Experience and Opinions of Organic Paddy Farming Respondents**

S. No.	Particulars	Total (210)
1	Converted the inorganic into organic farming to improve the soil quality	199(94.8)
2	Converted the inorganic into organic farming to produce healthy food crops	200(95.2)
3	Converted the inorganic into organic farming to produce food crops for self-consumption	195(93.0)
4	Converted the inorganic into organic farming to avail of the benefit of price premium	170(81.0)
5	Converted the inorganic into organic farming to avail of the benefit of Government subsidy	180(85.7)
6	Converted the inorganic into organic farming to utilise the locally available resources	150(71.4)
7	Converted the inorganic into organic farming to reduce the problems of pests and diseases	138(65.7)
8	Converted the inorganic into organic farming to reduce the explicit cost of cultivation	183(87.1)

Note: Figures in parentheses are percentage to the total sample respondents.

It is clear from the foregoing discussion that all the factors are motivating at least some of the respondents to switch over from inorganic to organic farming. In district, highest percentage of respondents shifted from inorganic to organic paddy for healthy food crops. It was followed by the intention of improving the soil quality of their land and then with the intention of availing of the benefit of government subsidy. Therefore, foodgrains produced under organic farming are better in quality and tasty compared to products produced under inorganic farming.

### Conclusion

The problems associated with inorganic farming system or attractive features of organic

farming system; influence the farmers to convert the inorganic farming system into organic farming system. Consumers have been worried by a series of poisoning incidents with inorganically produced foods, and turned to organically produced food which is safer since they contain very less or no pesticide residues. Hence, organic farming has been a popular form of sustainable agriculture all over India. A large number of farmers are switching over from inorganic farming to organic farming in Karnataka. It is a fact that the upper caste people are more aware about the negative effects of high external input based and unsustainable inorganic farming hence large proportion of upper caste farmers are switching over to

organic farming than the lower caste farmers. It is quite natural that the knowledgeable people are more inclined towards the innovative farming practices, added to this, increasing health awareness is also encouraging the people to go

for organic farming. Thus, the intention of improving the quality of paddy crop, soil quality of their land and then with the intention of availing of the benefit of government subsidy, farmers are moving towards organic farming in Shimoga district.

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