

3 **Jharkhand and Organic Agriculture**

4 **Abstract**

5 Organic farming is not a recent origin in India. In ancient literature such as Rig-Veda, the use
6 of animal dung as manure was highly emphasised. Approximately two-thirds of a million of
7 the farmer populations in India are cultivating organically, but this a tiny portion of the
8 farming community. As there are few states that have not done much development in organic
9 farming like Jharkhand which became independent as a separate state 16 years ago.
10 Approximately 0.08% of Jharkhand's cultivatable land is being promoted to be free from
11 chemical fertilizers and pesticides. Out of the net cultivated area of 31 lakh hectare (ha), only
12 26,310 ha is the area where organic cultivation is promoted. When we compare it with the
13 states like Sikkim and Meghalaya, which have been or will be certified organic state by 2020,
14 we get the real picture of farmers who are lagging behind. Lack of certification, lengthy
15 procedure and low production initially are some of the reasons because of which farmers
16 don't opt for organic agriculture. Initiatives like Public Private Partnership, promoting animal
17 husbandry, Contract Organic farming (COF), Participatory Guarantee System (PGS), Farmer
18 Producer Organisation (FPO) and raising public awareness are some steps that are required to
19 develop organic agriculture, to improve human health and to save the environment.

20 **Keywords:** Organic agriculture, Participatory Guarantee System (PGS), Certified, Contract
21 Organic Farming, Environment.

22 **1. Introduction**

23 Organic agriculture is basically a system of production which discourages the use of synthetic
24 fertilizers and growth regulators to the maximum and relies on basic measures like crop
25 rotation, crop residue, animal and green manures, off-farming organic waste and many more
26 to maintain soil productivity (physical aspects of soil), nutrient supply to plants, weeds and
27 insect control. "It is a method of farming system which primarily aims at cultivating the land
28 and raising crops in such a way, that the soil remains alive and in good health by use of
29 organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials

30 along with beneficial microbes (bio-fertilizers) to release nutrients, to crops for increased
31 sustainable production in an eco-friendly pollution free environment” (Yadav, 2012, p. 3).
32 Organic farming is not of recent origin in India. In ancient literature such as Rig-Veda, the
33 use of animal dung as manure was emphasized. “The principles apply to agriculture in the
34 broadest sense, including the way people tend soils, water, plants and animals in order to
35 produce, prepare and distribute food and other goods” (Yadav, 2012, p. 12) According to
36 IFOAM organic agriculture means “any system that uses organic methods and is based on the
37 Principles of Organic Agriculture”, regardless of whether it’s certified or not (IFOAM, 2015,
38 p. 2). In India, there is a section of farmers who are farming organically, not because they
39 opted to save the environment, but because they are using this method traditionally and such
40 farmers are not financially stable and have no certification, yet they are producing it
41 organically.

42 This article gives an overview of organic farming in India with focus on Jharkhand. It
43 provides us with the information about the status and development of organic farming in
44 Jharkhand. The paper also highlights the problems and constraints that farmers of Jharkhand
45 face as they adopt or think of adopting organic farming and solutions to the problem faced by
46 farmers.

47 **2. Organic India and Jharkhand**

48 Organic agriculture is being adopted by farmers all over the country for different reasons
49 giving its growth of a three-dimensional picture. Categorically, there are three types of
50 farmers. The first one includes those organic farmers, those who come from no/low input
51 zones, where organic farming is a tradition owing to the absence of the resources needed for
52 conventional high input in intensive agriculture. The majority of farmers in this category are
53 uncertified. The second category include farmers those who have adopted organic farming in
54 recent times due to adverse effects of conventional farming like depletion in soil health,
55 contamination of food with different chemicals and poor level of production. It includes both
56 certified and uncertified farmers. In the third category, the majority of the farmers are the
57 certified ones. They are the farmers and firms who are producing the organic crops for
58 commercial purpose in a planned manner. Their mere motive is to earn a profit by producing
59 organically (Yadav, 2012, p. 7). Approximately two-thirds of a million of the farmer
60 population in India is cultivating organically (Hill, 2016). In 2015 India showed an increase
61 in the export and domestic market of organic produce with a growth of 30 and 40 percent

62 respectively (Wai, 2016, p. 176). A year back with the production of more than 70,000 MT of
 63 organic cotton lint, India has become the largest producer by having more than 50% of the
 64 production share in the world's organic cotton (Yadav, 2012, p.11). "With the phenomenal
 65 growth in area under organic management and growing demand for wild harvest products
 66 India has emerged as the single largest country with highest arable cultivated land under
 67 organic management" (Yadav, 2012, p. 10). The export performance of organic food products
 68 from India is highest with cash crops like tea, coffee, spices etc and then cereal crops like
 69 paddy, wheat.

70 **Table 1.1 Export performance of organic food products from India.**

71

S.No	Organic Food	Sales (Tons)
1	TEA	3000
2	COFFEE	550
3	SPICES	700
4	RICE	2500
5	WHEAT	1150
6	PULSES	300
7	OILSEEDS	100
8	FRUITS & VEGETABLES	1800
9	CASHEWNUT	375
10	COTTON	1200
11	HERBAL PRODUCTS	250

72 Source: Chandrashekar, 2010, p.6

73 In India, there are few states that are rapidly moving towards organic farming like Sikkim
 74 which is in the direction of being 100 percent organic, then Meghalaya, which has an aim to
 75 certify 200,000 hectares of land by 2020, starting with just 40,000 hectares in 2015 (Wai,
 76 2016, p. 178). And there are states like Jharkhand which have not done much development in
 77 organic farming and they need to do much in the field, starting from spreading awareness
 78 among the people through to capacity-building, training and implementation.

79 The Government of Jharkhand formed a society known as Organic Farming Authority of
 80 Jharkhand (OFAJ) in 2012 for promoting organic agriculture, 12 years after getting
 81 independence as a separate state, which shows very little information available about organic

82 farming in the state. In Jharkhand, more than 70% of the population depends on agriculture
83 as their source of livelihood. The main crop grown here is paddy during kharif season.
84 Several horticultural crops like French beans, Cole crops, and tomato are grown throughout
85 the year. OFAJ was formed to terminate the indiscriminate use of chemical fertilizers. Under
86 its governance 13 districts under Tribal Sub Plan (TSB) namely Ranchi, Khunti, Lohardaga,
87 Gumla, West Singhbhum, East Singhbhum, Saraikela-Kharshawan, Dumka, Simdega, Pakur
88 and Sahebganj have been included (OFAJ, 2013).

89

90 Under OFAJ three separate missions focusing on horticultural crops:

91 **I. State Organic Mission:**

92 In this the total farmland area is 15,700 hectares and fund allocated is Rs 10 crore for all the
93 13 districts. Identified crops are mainly vegetables like Pea, Okra, French bean, and Broccoli.

94 **II. State Spices Mission:**

95 In this the total farmland area is 7610 hectares and fund allocated is Rs 5 crore for all the 13
96 districts. Identified crops are mainly vegetables like turmeric, coriander, garlic, and chilly.

97 **III. State Medicinal Mission:**

98 In this the total farmland area is 3000 hectares and fund allocated is Rs 2 crore for all the 13
99 districts. Identified crops are mainly vegetables like Kalmegh, Aloe Vera, and Shatawar.

100

101 In the present scenario where hundreds of crore of rupees are spent by different states to
102 convert their land to organic, Government of Jharkhand allots a mere Rs 17 crore for
103 promoting organic agriculture in 26,310 hectares of land. This is barely 0.08% of the total
104 agricultural land of the state. Then the amount allocated in the state organic mission on an
105 average is Rs 6,500 to spend per hectare for promoting organic farming, which isn't much
106 apparently. We are taking too much from the environment and giving back too little to
107 maintain the ecology.

108

109 **3. COST ANALYSIS OF ORGANIC FARMING**

110 The cost incurred and income earned between the conventional and organic farming based
111 upon cropping of turmeric and cotton is analysed. 'The total cost of cultivation of organic
112 and conventional turmeric per hectare was worked out to US\$ 2641.43 and US\$ 3529.13
113 respectively. The net income per hectare was US\$ 2727.19 and US\$ 1876.13 respectively.
114 The cost of cultivation of organic and conventional cotton per hectare was worked out to US\$
115 1306.79 and US\$ 1725.19 respectively. The net income per hectare was US\$ 1332.13 and
116 US\$ 1032.68 respectively' (Amarnath & Sridhar, 2012). This definitely shows the real

117 potential of organic farming as it not only helps in monetary terms but also helps in regaining
118 the soil health and environment

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120

121 **4. Problems and constraints available in Jharkhand:**

122 “The most important constraint felt in the progress of organic farming is the inability of the
123 government policy making level to take a firm decision to promote organic agriculture.
124 Unless such a clear and unambiguous direction is available in terms of both financial and
125 technical supports, from the Centre to the Panchayath levels, mere regulation making will
126 amount to nothing” (Narayan. 2005, p. 67). “This immense commercialization of agriculture
127 has also had a very negative effect on the environment. The use of pesticides has led to
128 enormous levels of chemical buildup in our environment, in soil, water, air, in animals and
129 even in our own bodies. Fertilizers have a short-term effect on productivity, but a longer-term
130 negative effect on the environment where they remain for years after leaching and running
131 off, contaminating ground water and water bodies”(Chandrashekar, 2010). Secondly the only
132 agriculture university Birsa Agriculture University needs to take few steps against the
133 scientists who promote chemical farming and seed owned by MNCs. “The availability of
134 quality seeds can also be increased by Public-Private Partnership (PPP) in the seed industry,
135 which can exploit the strengths that exist in these two sectors. While the public system has
136 competent scientific manpower and is equipped for both basic strategic and applied research,
137 the private sector relatively lags behind the vast modern infrastructure facilities and large
138 manpower. However, the private sector has expertise in high tech research like the
139 development of genetically modified varieties and seed production. The climatic conditions
140 of Jharkhand state are ideally suited for quality seed production during winter crops and
141 could be an ideal state for the private sector to exploit the opportunities” (Singh and Singh,
142 2016, p. 13).

143 These are the major problem found by the farmers for the growth of organic farming

144 **4.1 Lack of Awareness:**

145 The lack of awareness can be seen in both, the producers as well as the consumers. The
146 consumer doesn't have much knowledge about organic farming as they don't have any
147 information about the harm which the chemical and pesticides is causing to their health.
148 Secondly, the price of the organic products is higher than other products hereby the
149 consumers, especially the middle class and lower class earning families opt for the produce

150 from chemical farming. Similar is the situation of the farmers as they are unaware about the
151 methods and techniques of organic farming, how to make manures, compost or bio
152 fertilizers, the moisture level required to be maintained etc. Hereby no benefit is available for
153 the soil or for the crops (Narayan. 2005, p. 67).

154 **4.2 Marketing Obstacles in Selling the Products:**

155 Few farmers who took the duress of cultivating organically don't get the right price for the
156 product produced. They don't get the price which they should, more than the products
157 cultivated conventionally. One reason is that people are unaware of certain ill-effects which
158 are caused by the consumption of conventional farming method and hereby don't purchase
159 the organic product in the name of extra expense. (Narayan 2005, p 67). "And the focus is
160 now more on quantity and "outer" quality (appearance) rather than intrinsic or nutritional
161 quality, also called vitality"(Chandrashekar, 2010)

162 **4.3 Inadequate animal husbandry**

163 Animal husbandry of Jharkhand is inadequate, which can be considered as the major
164 drawback, because of which people are unable to produce enough organic manure required
165 for maintaining an organic farm. Another problem is that the farmers do not know how to
166 manage manure, cattle waste etc. which are an important component. Therefore, they need to
167 rely on the market for the supply of organic inputs and this increases the price of the product.

168 **4.4 Desi vs HYV Seeds**

169 Desi seeds are the one which is kept or preserved by the farmers for sowing next year. It is kept in a
170 place generally a dark shaded house free from insects and pest. Optimum temperature is maintained
171 to keep the seeds alive. While high yielding varieties are the one which are made with F1 progeny. In
172 1966 Prof. M.S. Swaminathan introduced the HYV seeds to the farmer under the umbrella of green
173 revolution, but these HYV requires heavy investment. And with the recent inclination of the farmers
174 towards the HYV seeds have degraded the soil as well as the taste and nutritional value of the
175 product is not available. As according to FAO a farmer can use HYV seeds to grow organically but
176 as per the guidelines of National Center for Organic Farming (NCOF) the farmer needs to use
177 traditional seeds for complete certification as an organic farmer. As according to the farmers of
178 Chitarkota, Ratu Block Ranchi, Jharkhand although they sow HYV seeds but they are not at all
179 satisfied morally, as the produce is doesn't have the nutritive value as well as the taste which the desi
180 seed possesses. But still they opt for HYV seeds just for the sake of high production. The residue,
181 i.e. the straw available in the field after the harvest of the crop is not given to the cattles because of

182 the high amount of chemical in the crop so they go for burning the straw. Similar to 80% of the
183 farmers opt for hybrid for paddy cultivation in Eastern India and when ask for the reason to several
184 vendors at Ormanjhi block, Ranchi the prominent reason were increased yield, small agriculture land
185 holding and as they can afford it. (Hill & Hill, 2015)

186 **4.5 Lack of input markets**

187 The majority of the farmers in Jharkhand are small and marginal ones. They don't have the
188 capacity to purchase the inputs required for organic farming because of three reasons:

189 4.5.1 No availability of inputs – several times it is the case that the farmer is there willing
190 to shift its cultivation from inorganic to organic, but unable to do so because of the
191 unavailability of the inputs. Secondly timely availability of the input is also an
192 important concern which is playing an important role in dipping the back to
193 chemical farming.

194 4.5.2 Higher Price of the Inputs – In Jharkhand majority of the farmers are marginalized
195 one, they are unable to match the required quantity of the input required as the price
196 of the input is high. The price of vermicompost is 100 rs per Kilogram and the
197 farmers needs a heavy dosage of vermicompost possibly for organic farming, which
198 acts as a drawback for the farming who are eager to adopt organic agriculture.

199 4.5.3 Duplication – this is also a prominent problem arising in the agricultural marketing
200 sectors, as the farmers do purchase and use the organic input but their produce are
201 adulterated. The reason being the input used by the farmers not being a certified or
202 original one.

203 **4.6 High input costs:**

204 In Jharkhand nowadays, the farmers rely less on livestock for the manure purpose. This
205 is partly because due to the rate of migration and nucleation of families, there is less
206 labour available at home, and so households are reluctant or unable to keep livestock
207 which require grazing and other care. Besides, chemical inputs have been promoted
208 alongside the hybrid seeds which are sold by traders and vendors. Therefore, farmer need
209 to purchase the inputs required for organic farming like vermicompost, manures etc
210 which is costlier than the inputs required in conventional method of farming. This is a
211 major reason, because of which the farmers are not willing to convert their land into
212 organic.

213 **4.7 Lack of financial support:**

214 The farmers of the country do make Self Help Groups and others to help themselves, but the
 215 truth is that the financial input required by the farmers for the conversion of the field into
 216 organic is very high and farmers who are economically weak are unable to opt it.

217 **4.8 Due of nuclear family:**

218 The new wave is there in the village of diving the family into nuclear families, hereby dividing the
 219 land holding capacity of the individuals. This leads to the less land available with the particular
 220 farmers hereby making it unviable for the farmers to cultivate organically

221 **4.9 Disproportionate Agriculture land holding:**

222 The agricultural holding of Jharkhand does show us one of the reasons why the farmers do
 223 opt to convert their field to organic. In all the social groups in Jharkhand, the small and
 224 marginal group make 84.06% of the total agricultural holding, which indirectly also shows the
 225 economic condition of the farmers. Secondly, for the conversion farmer needs to have a
 226 buffer zone, against the chemical farming area to restrict contamination which is approx. 10%
 227 of the total area. A farmer having averaged 1 ha of land can never leave 0.1 ha of its
 228 cultivating area. Therefore, they continue with the conventional farming. Finally, we can say
 229 that In Jharkhand land holding scenario can be divided into two situations. One in which the
 230 farmers have sufficient land holding where he/she can produce organically if all the other
 231 criteria gets fulfilled and second is the one who don't have sufficient land holding and are
 232 unable to sustain their life from that piece of land.

233 **Table 1.2. Number and Area of Agricultural holdings for All Social Groups**
 234 **(percentage):**

Social Groups	Number (in '000)	Area (in '000 ha)	Percentage of Landholding
Marginal <1ha	1848	764	68.23
Small 1-2ha	429	591	15.83
Semi-medium 2-4ha	283	775	10.44
Medium 4-10ha	129	725	4.75
Large >10ha	20	311	0.75

235 Source: GOI (2011) Agriculture Census. p. 17-21

236 **3.10 Low yield initially:**

237 During the initial days of organic cultivation the productivity of the land goes down
238 drastically, and a marginal farmer is unable to bear the risk of having a low yield during the
239 initial stage of the conversion i.e.2-3 years. And the different policies made by the state
240 government, along with relief scheme is not available to the farmers during this period
241 (Narayan 2005, p 69). Other problems like lack of efficient schemes run by the government
242 which promotes organic farming, lack of certification agencies and lengthy process are a few
243 major reasons for the farmer not interested towards it.

244

245

246 **5. Solutions to the Problem**

247 The solution stated below are beneficial for farmers as well as the ecology. It will give the
248 farmers enough opportunity to grow commercially as well as organically. This will includes
249 Contract Organic farming and Participatory Guarantee System and promoting Animal
250 Husbandry ought to be promoted.

251 **5.1 Public Private Partnership (PPP) for Promoting Organic Agriculture:**

252 Public Private Partnership can prove a real game changer in the Organic agriculture sector.
253 The government, private companies along with the education as well as research and
254 development can transform the organic agriculture at multiple level. With the government
255 financing the project/model, while the private sector has the technical expertise while the
256 farmer will do the rest. The duty of research and development would be to create awareness
257 among people about the benefits of organic farming and their products and the ill-effects of
258 chemical farming. The government could also play an important role in creating an
259 environment for the private investment through an increase in public spending, priority sector
260 lending, Foreign Direct Investment (FDI), Tax relaxation, and Duty exemption (Choudhary,
261 2015)

262 **5.2 Contract Organic Farming (COF)**

263 It is the contract between the buyer (firm) and the farmer, where he produces the agricultural
264 products and supplies directly to the buyer. Both of them agree on certain terms and
265 conditions for the sale and purchase of the product. In this system the companies meet the
266 farmer from time to time and provide them all the latest agronomic and technical help
267 possible for producing the crops (Dutta, Dutta, & Sengupta, 2016).

268

269 Similarly, in the contract organic farming, the farmer will be provided with all the organic
270 amenities required by the farmers to produce organically like bio fertilizer, vermicompost,
271 manures etc. In this type of farming there is some point that makes it a solid proof for the
272 farmers to sustain economically and environmentally.

273 i. The price is already fixed

274 ii. Quality and quantity fixed

275 iii. Duration of the crop is based on the demand of the company crops (Dutta, Dutta,
276 & Sengupta, 2016).

277 Hence, it will help the farmers of Jharkhand to farm organically and with the help of multi-
278 national companies it will be easier for the farmers to convert their field by coming in
279 contract. It will help them economically, socially as well as ecologically.

280 **5.3 Participatory Guarantee System (PGS)**

281 PGS are defined as “quality assurance initiatives that are locally relevant, emphasize the
282 participation of stakeholders, including producers and consumers and operate outside the
283 frame of third party certification” (May, 2008, p. v). May (2008, p. 6-8) elaborates a few
284 basic elements required for PGS: participatory approach and collective responsibility,
285 transparency, trust, non-hierarchical, same goal of having higher standards in production,
286 excluding social injustice, eco-friendly, and respect for the autonomy of local communities
287 and cultural differences. In PGS the members of the group conduct peer review of another
288 member of the farm, to check the organic standard of the field and the member do agree to
289 face the consequences for any infringement. Like if a farmer is being caught using the
290 prohibited inputs, then he/she will be fined or may be thrown out of the group (Hill, 2016).

291 The government of Jharkhand solely or collaborating with non-governmental organization
292 can come up with a plan of forming PGS, where the farmers with small holding will form a
293 group. PGS will work as an umbrella under which all farmers will be certified based on the
294 review given by the group member. This will encourage the farmers in practicing the organic
295 farming and develop collectively.

296 **5.4 Forming Farmer Producer Organisation:**

297 “Producer Organisation is an association, a society, a cooperative, a union, a federation or even a firm
298 that has been established to promote the interests of farmers” (Panda & Singh, 2016). In this the
299 farmers are the stakeholders in the organization and ate from either farm or non-farm activities with

300 all legal validation and deals with the primary producers. In the FPO the profit is shared among the
301 producers and some share is kept as reserves. “Fund of 200 crores by the Government NABARD
302 to be utilized for the building and promotion of 2000 Farmer Producer Organizations in two years” (
303 efresh, 2014) which meant that the Government is coming up open hand to help the FPO and to
304 produce the product which will help them fetch good price by neglecting the mediators. Hereby
305 helping the farmers to earn profit and to make their agriculture more than subsistence. So the farmers
306 after forming FPO and practice organic farming could prove a real asset for their development.

307

308

309 **5.5 Promoting Animal Husbandry**

310 The beef ban has decreased the price of the cattle, which has affected the farmers directly as
311 well as indirectly. The farmers after getting hit by bad harvests due to drought and
312 unseasoned rain, can compensate their income with the allied activities of animal husbandry (
313 Deccan Herald, 2016). Therefore, some steps related to the situation should be taken by the
314 government to promote animal husbandry. Similar is the situation with upgrading the
315 technical aspects of the farm, as the farmers show less interest in keeping cattle, as the
316 majority of the farm work which was earlier done by the cattle are now done by tractors and
317 other implements saving the time for the farmers and is the new trend now. It is important for
318 a farmer to have livestock, as not only it will produce dung which will be used for as the
319 fertilizer, it will work as a secondary source of income for the farmers. It will also work as a
320 money saver as the fertilizer could be used by the farmer and the cost of purchasing fertilizer
321 will get deduced and hereby could increase the profit rate of the farmer.

322 Some other suggestions could be

- 323 i. Substantial financial support to the farmers who are willing to convert their field, but
324 are unable to because of financial problems.
- 325 ii. Market development for organic product produced by the farmers.
- 326 iii. Proper organization for inspection and certification.
- 327 iv. Identification of crop for that very farm based on soil type ecological condition is
328 necessary so as to get the best production ex soybean in Madhya Pradesh period
329 (Narayan 2005, p 77).

330 **6. Conclusion**

331 The interest in organic farming is increasing among the farmers as the present conventional
332 method of farming has degraded enough of the natural resources (Scialabba, 1998). The
333 awareness among the producers and the consumer is increasing but at a steady rate. Another
334 benefit which our country can reap is that as organic farming is labour intensive mechanism
335 and our country, where labour is abundant and cheap, we could exploit this opportunity for
336 the betterment in organic farming. “Currently, most of the organic farmers in India are still in
337 the transition phase and hence their costs are still high. As these farmers continue with
338 organic farming, the production costs are expected to reduce, making India as one of the most
339 important producers of organic food” (Chandrashekhar, 2016). The eagerness among the
340 policymakers to develop new policies for promoting organic agriculture is there. But all this
341 is available at a slower rate; we need to pace up the transforming process (Conventional to
342 Organic) for Ecology as well as for the economy.

343 Farmers can enjoy several other benefits by adopting organic farming. Which could be
344 bifurcated into three categories

345

- 346 i. Social benefits – Organic farming does show a positive attitude towards the
347 farming community as the earlier the farmer’s son would never want to be a
348 farmer, but with the increase in the demand for organic products there chances of
349 decrease in village duress because of migration. Secondly, helping in food
350 security not only quantity wise, but also quality-wise the food produced
351 organically are of high standards.
- 352 ii. Ecological benefits – Conservation of natural resources being one of the principle
353 of organic farming, it helps in maintaining the soil fertility, prevention of soil
354 erosion and tackles other ecological problems.
- 355 iii. Economic benefits – any farmer which is cultivating this about the economic
356 aspect of the production and if he/she will get the profit, then economically as
357 well as ecologically than the farmer will continue to grow organically which will
358 not only increase in livelihood opportunities but getting the farmers a better price
359 of their products.

360 All in all it’s a win-win situation for the farmers who opt for organic farming, they just need
361 to bear a few difficulties during the initial stage and later on it will be an easy and successful

362 phase for them. It will not only help the environment but also help the country as it will
363 decrease the problem of food security and other menaces.

364

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