



**CHANDRAKONA VIDYASAGAR
MAHAVIDYALAYA**

A Project Report on

**Potato Cultivation & Use of
Chemicals: A survey at
Chandrakona II block, Paschim
Medinipur, W. B.-721201, India**

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Potato Cultivation & Use of Chemicals: A survey at Chandrakona II block, Paschim Medinipur, W. B.-721201, India

1. Abstract:

Food is the fuel of our body and when it comes to vegetables, potato is one of the largest cultivated vegetables among all of them. As growing population requires more food to stay alive, that leads to the applications of fertilizers and pesticides in cultivation. Due to the uses of fertilizers and pesticides humanity is facing serious health problems and some regularly formed foods may cause unpleasant effects on human and livestock health. Now a days, people becomes more conscious about their health and for that, interest in organically cultivated foods are mounting worldwide. As a result, customers are showing more interest in organically produced potatoes due to their high nutritional quality and health protection value. By a simple survey approach, here we are tried to discuss with the farmer community about the environmental implications of potato agriculture and we are trying to pass the knowledge of the goodness of organic firming. We choose potato, as Chandrakona-II block is well known for potato production and probably it is one of the largest cultivation in this area.

2. Introduction:

Food is the most important things in our life, because without it we can't survive. When it comes to vegetables, Potato (*Solanum tuberosum* L.), is one of the most important and worldwide cultivated food crop [1]. So, it is popularly known as 'The king of vegetables'. The good food value content of potato makes it nutritionally better vegetable as well as essential food not only in our country but also throughout the world. Every time we take a meal potato is present over there and to fulfil this much of need we have to increase the production of it. This significant increase in potato production is mainly due to area expansion and due the uses of fertilizers and pesticides [2, 3, 4]. Almost all the States of India cultivate potato under different agro-climatic conditions [5]. Present study says West Bengal is the 2nd largest state in India in potato production. Our college Chandrakona Vidyasagar Mahavidyalaya, is situated at Chandrakona II block under Paschim Medinipur district where Potato is the prime cash crop even before rice and jute. As per the requirement production have to increase and as a result there are significant increase in the use of fertilizers, pesticides and newer varieties of potato seeds over the traditional varieties [6, 7]. These not

only produce enhanced production and newer opportunities but also create serious problems [8]. By a random survey process, we talk to the local farmers of four villages of Chandrakona –II block and based on this survey we have prepare this report of potato farming at Chandrakona –II block.

3. Study area:

Total area of Chandrakona II block is around 150.44 km². It consists of 1 panchayat samity, 6 gram panchayats, 86 gram sansads (village councils), 131 mouzas and 122 inhabited villages. Persons engaged in agriculture in Chandrakona-II block: Bargadars- 8.41%, Patta holders- 30.43%, Small farmers- 2.94%, Marginal farmers- 18.89%, and Agricultural labourers- 39.34%. We have randomly chosen 4 villages in Chandrakona-II block of Paschim Medinipur district, where we have been done our survey. In this survey 180 families were involved who were interviewed door-to-door.

4. Methods and methodology:

Through intensive field studies at our model area, we make the primary data for the present work. Some standard questions have been set to get valuable information about the struggle in potato cultivation. At Block level and village level we have collected the data through oral discussion from various classes of farmers, middleman and retailers.



Fig.1-Students doing Field Survey

5. Results and findings:

5.1 Variety of potato cultivated:

After doing the survey we came to know that in our study area mainly Kufri Jyoti variety of potato is produced. Only 1% of the interviewed farmers have been reported that they cultivate the Chandramukhi variety along with the Kufri Jyoti variety in a ratio of 1:9.

5.2 Interviewed Farmers Profile:

We randomly choose four villages at Chandrakona –II block to prepare our survey report. Total 180 respondents were interviewed in these locations.

Table 1: Potato farmers interviewed in April-May 2022:

Categories	Percent			
	Area-1 (Respondents-55)	Area-2 (Respondents-51)	Area-3 (Respondents-40)	Area-4 (Respondents-34)
Age				
0-20	5.54	3.67	4.89	2.76
20-40	31.12	33.45	23.64	29.32
40-60	50.02	51.13	55.37	47.28
60-80	13.32	11.75	16.10	20.64
Education				
No education	10.11	8.59	12.46	7.17
Primary	46.09	39.36	41.82	32.9
Secondary	28.24	32.04	37.84	34.25
Graduate	15.56	17.78	6.02	23.05
Post-graduate	0	2.23	1.86	2.63
Farmers knowledge towards pesticides				
Know about toxicity	56.62	60.41	48.59	42.73
Know about pollution	8.35	6.09	10.27	7.61
Know about right dose	32.0	29.04	19.30	26.84
Actually apply right dose	2.15	1.85	2.38	1.73
Farmers doing regular soil examination	0	0	0	0
Protection taken by farmers during pesticide use	5.0	6.23	8.21	4.36
Pesticide affected farmers	34.47	37	25.12	28.03

5.3 Use of Pesticides:

From the field study report we can see that most of the respondents have no idea about pesticide toxicity and the scientific protocol of pesticide use. Even they don't have much idea about the proper doses of pesticides which causes infertility of land and damage of ecological

balance. Here is the list of some pesticides which are normally used in our model area during potato cultivation:

1. Bluecopper
2. Blitox
3. Dithane M45
4. Indofil M45
5. Marlett M45
6. Satsuma M45
7. Uthane M45
8. Manzate M45
9. TataMida
10. Ultimet etc.

Along with these the farmers also use vitamins. They used these pesticides at least 4-5 times during potato cultivation in a certain time gap and the excessive use of chemicals make the cultivation land as well as our environment polluted.

Chandrakona potato cultivation with some areas of Ghatal is known as average. Potato cultivation requires a large amount of chemical pesticides. At the beginning of potato cultivation, farmers are complaining that pesticides are being sold in the black market. Farmers are reluctant to buy government-subsidized chemical fertilizer (Paschim Medinipore) on the black market and to buy pesticides at high prices. Farmers of Ghatal subdivision of West Midnapore are facing severe financial loss by buying pesticides at high prices (Pesticides are selling in black market). Farmers complained that they used to buy chemical fertilizers at Rs. even ripe bills are being paid at a higher price than what is written on the packet of chemical fertilizers. The administration was shaken after allegations of black marketing of such chemical fertilizers surfaced.

At the initiative of the block administration in different areas of Chandrakona of Paschim Medinipore district, the officials of the administration raided the shops of the sellers of chemical pesticides. They look at everything from stock registers to prices. They have said that legal action will be taken even if extra price is taken. On the other hand, the farmers do not know that there will be no profit or loss in the season of potato cultivation. On the one hand, the price of potato is higher than that of fertilizer.

Fertilizer sellers claim that chemical fertilizers are not matching the demand, they have to buy fertilizers at high prices so traders have to sell fertilizers at higher prices. This is where

the question arises as to how the traders are selling the government subsidized fertilizer at a higher price.

6. Organic farming:

These aspects of the potato farming are little discussed area and through this survey our motto was to motivate the farmers towards organic farming. When the farmers realise the harmful side effects of chemical use in cultivation only then they will start organic agriculture. At our study area already 39.27% farmers reported the application of herbal pesticides and bio-fertilizer such as cowdung manure and vermicopost because of their easy availability. About 84.6% of the farmers have the practice of crop rotation at Chandrakona-II block. But if we really want to cultivate organic potato we have to maintain various things such as:

1. Control of Pest and Weed [9]
2. Comparison of Nutrition content with conventionally cultivated potato
3. Management of Potato Disease Occurrence and Intensity [10, 11, 12]
4. Comparison of Total Tuber Yield and Marketable Yield [13, 14, 15]

Organic potato is healthier and content more food value because of the less or no use of harmful chemical.

7. Conclusion:

Potato is one of the most consumable vegetable in the world. To fulfil this large requirement production should increase which leads to the use of excessive chemical fertilizers and pesticides. But the bad impact on environment of this chemical use is significantly considerable during the last two decades. Especially the limited knowledge of farmers about the use of pesticides is very dangerous. For which they use the chemicals in more volume than the recommended volume. By this survey we had try to pass the knowledge to the farmers about the goodness of organic cultivation. We all know that Sikkim is the fully organic state in India. So if they can why not us? With community awareness we can also starts the good practice of organic cultivation.

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