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AN ECONOMIC ANALYSIS OF CULTIVATION CONSTRAINTS FACED BY TAMIL NADU GINGER FARMERS

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ABSTRACT :

Ginger belongs to Zingiberaceae family and is originated from South-East Asia. Tropical areas having high rainfall and hot and humid weather conditions are favourable for Ginger. The name 'ginger' is derived from the Sanskrit word 'Srngaveram' which means 'horn root'. In South East Asia the most popular form of ginger is raw ginger. It is revered as one of the most important and valued spices of the world. For over 5000 years ginger has been recognized as the "universal medicine" by the ancient orientals of China and India. Today ginger remains a component of more than 50 percent of the traditional herbal remedies and has been used to treat nausea, indigestion, fever and infection and to promote vitality and longevity. Ginger contains 2-3 per cent protein, 0.9 per cent fat, 1.2 per cent minerals, 2.4 percent fiber, 12.3 per cent carbohydrate and a good source of calcium, phosphorous, iron and vitamins.

KEYWORDS : *Economic Analysis , Cultivation Constraints Faced , traditional herbal remedies .*

INTRODUCTION:

In U.S.A., Canada, U.K. and other western countries, ginger is widely used in baking industry, meat processing industry and soft drink manufacturing industry besides cooking. Ginger, preserved in brine is most popular in Japan. Drinking ginger coffee is a deep rooted social custom in many West Asian countries.

Ginger is one of mainstay in Indian spice account and has been used for flavoring and medicinal purposes. Ginger occupies fourth position among spices produced in India, fifth position in terms of quality and sixth position in export earning among spices. India has also imported significant quantities of ginger in various forms, viz. ginger fresh, ginger unbleached, ginger bleached, ginger powder (not elsewhere specified) including dried ginger to the tune of 12,807 tons valued at Rs. 1, 925 lakh in 2009- 10. Nepal has been our main source of import.

India is the major producer of ginger having production of 655000 MT of ginger from 132000 ha area under its cultivation (National Horticulture Board, 2014). Productivity of ginger in India is more (3,417 kg/ha) than the average productivity (2,546 kg/ha) in the world. USA is having the highest (51,925 kg/ha) productivity of ginger in the world.

Though grown all over India, the finest quality ginger comes from Kerala due to its congenial climate and a rich earthy soil. Kerala, Karnataka, Orissa, Meghalaya, West Bengal, Sikkim and Mizoram are the major ginger producing states in India (Zala, 2009).

PROBLEMS OF GINGER CULTIVATION

The problems faced by ginger growers in various aspects of its production and marketing. Like other

farmers ginger growers also face a number of problems. These problems, are classified into three groups, namely problems of inputs, marketing problems and general problems.

PROBLEMS OF INPUTS

Problems of inputs include problems of land, labour, mulching materials, manures, chemical fertilizers and plant protection.

Land

Non-availability of fertile land is one of the important problems. The most suitable soil for maximum ginger production is sandy loam having good drainage and rich in humus content. The problem of disease tends to increase when ginger is grown every years in the same land. In less fertile land they have to use larger quantities of manures and fertilizers. The probabilities of destruction of crops by pests and diseases are low in virgin lands.

Labour

Ginger cultivation is highly labour intensive. Non-availability of labour and the consequent increasing wage rate are the main problems related with labour. The increasing cost of cultivation of ginger is mainly due to increasing wage rate year by year. On the other hand there is no such steady increase in ginger price. Many farmers complain that sufficient labour is not available during the planting period.

Seed

Most of the farmers surveyed have inform that inadequacy and non-availability of healthy seed is a serious hurdle in the efficient production of ginger. Generally, cultivators retain adequate quantities from their crop for the purpose of seeds. In many years the preservation of seeds from previous cultivation is not possible due to the plant diseases. They further add that most of them are purchasing seeds from adjoining areas. As a result of this they have to pay exorbitant prices and still there is no guarantee for the good quality disease-free seed. Taking recourse to high yielding varieties is one of the ways to increase the yield of a crop. Most of the respondents are not aware of the new varieties like 'Suprabha', 'Suruchi' and 'Surabhi' released recently by the research institutions. Besides, ginger seeds are not supplied by KrishiBhavans or Government farms.

Mulching Materials

Application of green leaves during planting and six months later have an effect of increasing yield to a considerable extent over the non-mulched crop. At present because of the heavy deforestation there is great difficulty in getting green leaves. Majority of the sampled farmers inform that mulching materials are not available in sufficient quantities. The cultivators had to purchase the green leaves from outside the village which resulted in additional cost. About 40% of the farmers mulched only once due to the non-availability and high cost of mulching materials.

Manures and Chemical Fertilizers.

Ginger is a crop which requires heavy dosage of manures and fertilizers. The study shows that most of the farmers are not applying adequate quantity of manures and fertilizers. Non-availability of cattle manure is one of the important problems of ginger growers. The use of chemical fertilizers per hectare is also far below the recommended dosage. Many growers report that prices of chemical fertilizers have increased by more than 100 % within three years.

Diseases

All sampled farmers have reported that plant disease is the most importantproblem of ginger cultivation. Various pests and fungi destroy the cropquantitatively and qualitatively. Many diseases are seed borne and soil borne. The main pests found in this plant are shoot borer, leaf roller and rhizomescale.

The shoot borer is the most important pest of ginger. It feed on thegrowing shoot resulting in yellowing and drying of the infested shoots. Thelarvae of the leaf roller fold the leaf and feed from within. The rhizome

scalecause damage to ginger rhizomes under field as well as under storage conditions.

Table No 1
State-wise Area and Production of Garlic Area in '000 ha Production in '000 Tonne

States/UTs	2012-13		2013-14		2014-15	
	Area	Production	Area	Production	Area	Production
1 Madhya Pradesh	60	270	60	270	60	270
2 Gujarat	39.2	277.46	35	250	35	250
3 Rajasthan	59.45	235.98	45.02	218.42	45	218.18
4 Uttar Pradesh	36.08	187.39	37.24	218.18	37.2	218.2
5 Assam	9.98	67.79	10.08	69.42	10.1	69.4
6 Punjab	3.7	45	3.7	45	3.7	45
7 Maharashtra	3.5	40	3.5	40	3.5	40
8 West Bengal	3.35	40	3.35	40	3.4	40
9 Haryana	4.44	35.8	4.44	35.8	4.44	35.8
10 Odisha	10.9	35.5	10.9	35.5	10.9	35.5
11 Karnataka	4.42	4.5	4.73	8.42	4.73	8.42
12 Himachal Pradesh	4.15	6.1	4.15	6.1	4.15	6.1
13 Bihar	4.25	4	4.25	4	4.25	4
14 Chhattisgarh	1.15	3.09	1.2	3.2	1.2	3.2
15 Tamil Nadu	0.45	2.59	0.45	2.59	0.5	2.6
16 Uttarakhand	1.09	1.54	1.09	1.54	1.1	1.5
17 Telangana	–	–	0.28	1.5	0.3	1.5
18 Meghalaya	0.28	1.11	0.28	1.11	0.3	1.1
19 Jammu & Kashmir	0.54	0.46	0.54	0.46	0.5	0.5
20 Kerala	0.07	0.72	0.07	0.4	0.1	0.4
21 Nagaland	0.1	0.15	0.1	0.15	0.1	0.2
22 Arunachal Pradesh	0.03	0.01	0.03	0.01	0	0
23 Mizoram	0.02	0.01	0.02	0.01	0.2	0
24 Manipur	0.17	0	0.17	0	0.2	0
25 Andhra Pradesh	0.4.	0	–	–	–	–
Total	**247.52**	**1259.27**	**230.59**	**1251.88**	**230.6**	**1251.9**

Source: Horticulture Statistics Division, DAC&FW.
DAC&FW. Note: * Estimates for Telangana for 2013-14

The major diseases in ginger are the crop loss due to rhizome rot andbacterial wilt. Even though all farmers are using plant protection chemicals, itis of negligible quantities. Majority of farmers are found to be ignorant of themeasures to be adopted against these diseases and pests. An effective controlmeasure for soft rot is not available at present.

MARKETING PROBLEMS

In the process of marketing the ginger growers face several types ofdifficulties in relation to processing, storage, price fluctuation and market intelligence

PROCESSING

Ginger is sold either in fresh or dry form. Peeling of fresh ginger is highlylabour intensive. Many farmers report that they had to transport the productto distant place for sun drying. Mechanical processing of ginger is not popularin Kerala. Traditional method of processing and unfavourable climate duringthe processing period would boost-up cost and reduce quality.

STORAGE

Storage forms an integral part of marketing. Most of the fanners are compelled to sell the product immediately after harvest owing to the lack of storagefacilities. Some large scale cultivators sell the commodity

through commissionagents who store it in godowns. The main cost involved in thestorage are godown rent, interest and storage losses due to drainage and insectattack. Dry ginger is susceptible to weevil infestation, particularly during monsoon.

Price Fluctuations

There are great fluctuations in the prices of ginger. The farmers have nocontrol over ginger prices. They are not getting remunerative price during thepeak harvesting seasons and they are not in a position to keep the material intheir houses. The cyclical and seasonal fluctuations coupled with lack of holdingcapacity by farmers and the nature of the commodity being susceptible toinsect damage influence the cultivation. Because of the uncertainty in prices,they can't calculate even the probable profitability of ginger cultivation. Therefore,most of the ginger cultivators are small and medium farmers who use theirown family labour for cultivation.

Market Intelligence

Market intelligence is one of important aspects in the modern system ofmarketing. A smooth marketing system depends upon accurate, adequate andtimely information. Unfortunately, the existing facilities available in the countryare far from being satisfactory.

Majority of the farmers complained about inadequate information relatingto market prices and market arrivals. The service provided by the authoritiesare not adequate to reach the producers, especially small and marginalcultivators. Most of the producers depend on the fellow cultivators or on thevillage merchants to know the prevailing prices. The information received fromother cultivators is usually not up to date and the traders often pass-on misleadinginformation.

The prices of ginger are being broadcast by the All India Radio alongwith the prices of other agricultural commodities. Some of the local and nationalnewspapers are also publishing prices of ginger. The small cultivators,however, are unable to take advantage of this facility. It discourages the cultivatorsto cultivate ginger for a longer period.

Credit

Non-availability of adequate finance at reasonable cost is a serious problemwhich the ginger farmers face. This problem comes in the way of processingwhich affects selling price. Financial constraint weakens the holding capacityof farmers in times of market decline and the resultant fall in the value realisationmay even affect their ability to continue the ginger cultivation.

Although there are cooperative societies and commercial banks in villagesto provide credit facilities to farmers. Finance continues to be an importantconstraint. The amount of loan given by these institutions is inadequate fortheir need and so the major source of finance is the professional money lenders.

Extension Activities

All the respondents inform that they are not getting technical advice onproduction, processing and marketing from the local KrishiBhavans or Governmentagencies. A wide gap exists in the yield obtained at the researchinstitutions and that in the farmer's field.

Most of the ginger growers are notaware of the new varieties released and cultivation and processing techniquesdeveloped recently. This shows that even the available technical know-how isnot fully made use of by farmers.

FACTORS AFFECTING PRODUCTIVITY OF GINGER CROP

The discussion in previous section was focused on studying the various parameters related to economics of ginger crop. Various factors affecting productivity of ginger are discussed in this section.

The coefficients of expenses incurred on bullock labour were negatively related to value productivity of ginger at one per cent level of significance. It shows the excessive use of bullock labour on the ginger crop. Hence, with increase in expenses on bullock labour by one per cent, the resultant value productivity decreases by 0.091 per cent. The regression coefficients of other explanatory variables such as expenditure on PPC, human labour and

area under ginger crop were found to be positive but non-significant; whereas regression coefficient of planting material/ seed was found to be negative but non-significant.

Therefore, on ginger, the explanatory variables affecting the value productivity of ginger crop positively and sufficiently were found to be; expenses on fertilizer and machine labour. Also there is excessive use of bullock labour on ginger farms. From the results it is suggested that bullock labour should be replaced by machine labour for having more efficiency on ginger farms.

CULTIVATION PROBLEMS

Ginger farmers face a wide range of problems. The major problems are the following:
(i) Non-availability of fertile land.
(ii) Increasing prices of manures and fertilizers.
(iii) Plant diseases.
(iv) Price fluctuations.
(v) Inadequate credit facilities.
(vi) Lack of extension activity.

Table No 2
State-wise Productivity of Ginger Productivity in Tonne/ha

States/UTs	2012-13	2013-14	2014-15
1 Madhya Pradesh	1.67	1.67	1.67
2 Gujarat	16.08	16.08	16.08
3 Rajasthan	1.94	2.05	2.05
4 Uttar Pradesh	4.89	5.13	5.13
5 Assam	7.67	7.8	7.8
6 Maharashtra	0.98	0.98	0.98
7 West Bengal	2.17	2.17	2.17
8 Odisha	2.21	2.21	2.21
9 Karnataka	3.5	3.19	3.19
10 Himachal Pradesh	1.78	2.37	2.37
11 Bihar	1.5	1.5	1.5
12 Chhattisgarh	1.21	1.1	1.1
13 Tamil Nadu	12.42	9.64	9.64
14Uttarakhand	9.95	9.95	9.95
15Telangana*	-	7.19	7.19
16 Meghalaya	6.02	6.53	6.53
17 Jammu & Kashmir	1.18	1.18	1.18
18 Kerala	5.31	4.79	4.79
19 Nagaland	6.77	6.77	6.77
20 Mizoram	3.9	3.9	3.9
21 Manipur	1.6	1.6	1.6
22 Andhra Pradesh	8.14	8.14	8.18
23 Tripura	4.22	4.22	4.22
24 Sikkim	5.57	5.6	5.6
25 Andaman & Nicobar Islands	8.88	8.88	8.88
Total	**5.01**	**4.94**	**4.94**

Source: Horticulture Statistics Division, DAC&FW.
DAC&FW. Note: * Estimates for Telangana for 2013-14

SUGGESTIONS TO OVERCOME THE CONSTRAINTS

- More emphasis should be given on R&D to release new verities/ seed for better yield and more resistance from diseases especially rotting problem of ginger.
- Govt. institutes should provide more extension services for getting good quality and high yield Farmers should also be trained for grading practices of ginger produce for having better market prices.

- Govt. should make provision for establishment of storage facility so that produce could be sold out during favorable market price of the produce.
- Establishment of cleaning, grading and semi-processing facility for fresh ginger raw material at the village level will ensure better returns to the ginger growers.
- Co-operative farming societies for ginger should be promoted to reduce high costs incurred on transport for marketing of produce.
- Govt. should also make provision for cheap financial services to promote ginger farming.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made for development of production, marketing and export of ginger.

(i) Although the average yield per hectare of ginger in Kerala is lower than that of many other states, there is further scope for increasing it. Yield can be increased by the timely supply of disease-free seed to farmers. The Government should undertake the responsibility of distribution of healthy seeds through panchayat level KrishiBhavans. Productivity increase is needed not only to increase the output but also to improve the cost competitiveness and profitability.

(ii) Since there is only limited scope for increasing area under ginger in Kerala as a monocrop, the existing potentialities of cultivating ginger as an intercrop in coconut, arecanut and young rubber plantations may also be exploited to the maximum possible extent. In ginger cultivation, emphasis should, therefore, be placed on both productivity increase and area expansion.

(iii) To protect cultivators from incurring loss the Government should announce a support price for ginger.

(iv) There should be a balance between demand and supply. For efficient marketing, it should be ensured that market does not suffer due to short or excess supply.

When supply exceeds demand, the state and central level cooperative organisations should enter the market and purchase the surplus.

v) Side by side with crop research, marketing research may be taken up so that enough data are available to the policy makers to fix prices and formulate developmental policies.

vi) Technologicalupgradation of processing is very much essential to improve the quality of dry ginger. Ginger is a food item and considerable importance is attached by importing countries to hygiene part of the produce.

Traditional method of processing will result in loss of flavour and quality. Scientific drying facilities should be made available by the Spices Board especially in major producing districts for producing clean and good quality product retaining the original flavour. This would encourage buyers' confidence, help the farmers to get better price for the commodity and would result in increased export.

(vii) There is a lot of potential for the export of value added products like ginger oil and oleoresin especially to the developed countries. This potential needs to be tapped fully.

(viii) Adequate International Marketing Information System should be developed so as to help formulate suitable strategy to develop exports.

CONCLUSION

Although majority of the farmers face a wide range of problems, plant diseases, price fluctuations, non-availability of fertile land and lack of extension activity are identified as the major problems of ginger cultivation. The detailed enquiry into these constraints will help in exploring the opportunities for enhancing ginger production in Tamil Nadu.

Attention should be paid to the diversification of the export products and markets. Steps may be taken to introduce ginger in syrup and ginger candy in the export market. For this purpose, suitable ginger varieties should be identified and up-to-date scientific processing techniques may be imparted to the manufactures.Extension agencies located in the ginger producing areas should be more alert in diagnosing and suggesting timely and suitable remedies to the growers for their field problems.Most of the ginger cultivators are not aware of the new varieties released recently by the research centres.

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