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Determinants of Diversification in Indian Agricultural Sector

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Abstract:

Agriculture diversification is one of the essential components of India's economic growth. It is the stage where traditional agriculture is transformed in to a dynamic and commercial sector by shifting the traditional agricultural product mix to high standard products, which has a high potential in stimulating production rate.
Agriculture diversification in India play a vital role in diversifying and commercializing agriculture, adding value to agricultural produce, generate employment, enhance income of farmers, and create surplus for export of processed products. Crop diversification and value addition of agricultural product are suggested to tackle these problems.

Keywords: Agriculture, Diversification, commercializing, etc.,

Introduction:-
Agricultural Diversification is an important part of the changing economy. Conceptually the term "diversification" has been derived from the word 'diverge' which means to move or extend in the direction different from a common point. In Agriculture, diversification can be defined as shift from the regional dominance of one crop to another crops, or from one enterprise to another enterprise or to engage in other complimentary activities. From the theoretical point of view agricultural diversification may be consider as diversification of resources from low income generating crops to high income generating crops. In developing countries like India start with a gradual shift towards diversification. At the time of independent, India was suffering with serious problem of food insecurity and with less developed market and private technology was responsible for low growth and high variability in agricultural sector.

But after 1990s with emergence of world trade organization and liberalization of trade create new opportunity for growth in the agricultural sector and major emphasis was given to the production of high value commodities crops.

Objectives of the Study:

1. To examine the determinants of agricultural diversification.
2. To study the constraints and prospects in crop diversification
3. To study the crop diversification area and production of hoticulture crops in india.

Discussions:

Diversification in India:

Agricultural diversification can improve crop productivity and deliver multiple ecosystem services by adopting more diversified cropping systems through crop rotation, multiple cropping or intercropping in arable crops, intercropping in orchards, and agro forestry. It includes two aspects, one relates to diversification of crop production and the other relates to a shift of workforce from agriculture to other allied activities and non-agricultural sector. In Indian agricultural diversification is obtaining two types that Horizontal Diversification This relates to multiple cropping or mix of crops instead of cultivating a single crop and Vertical Diversification It refers to the incorporation of industrialization along with multiple cropping.

Diversification of agriculture implies divergence from the regional dominance of single crop to the production of a multiple crops, however it is different from the concept of multiple cropping or succession planting in which multiple crops are planted in succession over the course of a growing season. Rather it take in account the use of environmental and human resources to grow a mix of crops with complementary marketing opportunities to meet ever increasing demand for pules, cereals, oilseeds, vegetables, fruits, fibres, fodder and grasses, fuel, etc, with the objective of not only improving the soil health only but to provide a dynamic equilibrium of the agro-ecosystem. It may be Horizontal, where diversification is done through crop intensification i.e add high value crops to the existing cropping system to raise productivity or Vertical where efforts have made to enhance product through branding, packaging or processing. So, crop diversification takes into account the economic returns from different value-added crops and hence a shifting of resources from low value crops to high value crops. Prospects for crop diversification depends upon the risks, opportunities and the viability of proposed within the agro-economic conditions. Indian agriculture witnessed a structural change in its composition leading to diversification into horticulture, livestock and fisheries since the 1990s. Horticulture sector, fruits including nuts; vegetables including potato, tuber crops and mushroom; ornamental plants including cut flowers; spices; plantation crops; and medicinal and aromatic plants has become a key driver of agricultural growth in many of the states and at present contributes approximately 30 per cent to the overall agricultural GDP of the country. The area and production of horticulture crop have significantly increased over the last few years.

An analysis of Determinants of Agricultural Diversification:

Agricultural growth is a function of the level of technology, government policies, cropped area and production portfolio. Temporal change in agricultural growth (i.e. changes in output levels of agricultural products over time) is, therefore, the cumulative effect of changes in all these components. A well informed policy formulation to promote the agricultural output ideally requires a decomposition of the effect of each one of these components on output. For national accounting purposes, the value of gross output from agriculture minus the value of inputs is considered as a measure of income from agriculture. For empirical purposes, crop yields are used as proxy for the cumulative effect of variables like government policies, gross cropped area, change in production–portfolio for agricultural diversification, etc. While these are an exogenous factor which influences the decision on agricultural diversification, as individuals farmers take certain factors into consideration before deciding on bringing about changes in their cultivation habits. These, therefore, could be counted under endogenous factors.

However, Farmers are being rational economic agents, would change their cropping pattern only when they expect an economic gain from such a change. Various determining Diversification Trends of Indian Agriculture factors, from the farmers' angle, for the adoption of agricultural diversification would therefore be: profit margin of new system, availability of market for produce, risk coverage, availability of technology, alternative incentives, and other compelling reasons to shift for a new system.

Constraints and prospects in crop diversification:

Crop diversification in the recent years is taking the form of increased area under commercial crops including fruits and vegetables. However, this has gained momentum in the last decade favouring increased area under vegetables and fruits and also to some extent on commercial crops like sugar cane, cotton and oilseeds, especially soya-bean. The major problems and constraints in crop diversification, with varied degrees of influence, are primarily the following. i) Over 117 mha of the cropped area in the country (63 percent) is completely dependent on rainfall. ii) Sub-optimal and over-use of resources like land and water have caused a negative impact on the environment and sustainability of agriculture. iii) Inadequate supply of seeds and plants of improved varieties. iii) Fragmentation of land holding working against modernization and mechanization of agriculture. v) Poor basic infrastructure like rural roads, power, transport, communications, etc. vi) Inadequate post-harvest technologies and inadequate infrastructure for postharvest handling of perishable horticultural produce. vii) Weak agro-based industry. viii) Weak research-extension-farmer linkages.ix) inadequately trained resources compounding the persistent and large scale illiteracy among farmers. x) Host of diseases and pests affecting most crop plants. xi) Poor database for horticultural crops. xii) Decreased investments in the agricultural sector over the years.

An analysis of Area and production of Indian Hoticulture Crops:

Category-wise: All India

Crops	2020-21		2021-22		2021-22	
	Final		(First Advance Estimate)		(Second Advance Estimate)	
Fruits	**Area**	**Production**	**Area**	**Production**	**Area**	**Production**
Almond	10	11	10	11	10	11
Aonla/Gooseberry	100	1197	100	1206	104	1272
Apple	313	2276	313	2437	313	2437
Banana	924	33062	880	32454	959	35131
Ber	53	580	53	570	53	586
Citrus						
(i)Lime / Lemon	327	3548	322	3517	322	3742
(ii) Mandarin	477	6219	473	6265	481	6399
(iii) Sweet Orange (Mosambi)	217	3988	220	3894	231	4249
(iv) Other Citrus	77	489	76	475	72	460
Citurs Total (i to iv)	**1097**	**14245**	**1091**	**14150**	**1106**	**14850**
Custardapple	47	407	45	387	47	402
Grapes	155	3358	162	3490	162	3445
Guava	308	3358	162	3490	162	3445
Jackfruit	188	1893	187	1877	188	1946
Kiwi	5	16	5	17	5	17
Litchi	98	720	98	724	99	728
Mango	2317	20386	2339	20336	2350	21011
Muskmelon	75	1478	70	1510	70	1544
Papaya	146	5540	149	5744	148	5885
Passion Fruit	11	70	11	57	12	58
Peach	11	70	11	57	12	58
Pear	18	111	18	108	18	110
Picanut	1	0	1	0	1	0
Pineapple	106	1799	106	1808	105	1741
Plum	24	84	23	78	23	84
Pomegranate	288	3271	282	3216	278	3188
Sapota	79	822	80	834	78	863
Strawberry	3	20	3	14	3	14
Walnut	109	281	109	282	109	282
Watermelon	119	3254	120	3225	123	3461
Other Fruits	**294**	**2741**	**359**	**3592**	**299**	**2828**
Total Fruits	**6930**	**102481**	**6967**	**102924**	**7019**	**107102**
Vegetables						
Beans	261	2595	256	2520	297	2744

Crops	2020-21		2021-22		2021-22	
	Final		(First Advance Estimate)		(Second Advance Estimate)	
Bittergourd	109	1330	107	1334	110	1369
Bottlegourd	193	3171	192	3143	193	3171
Brinjal	749	12874	744	12768	747	12982
Cabbage	412	9560	413	9606	418	9715
Capsicum	37	563	38	563	36	565
Carrot	108	1885	110	1910	108	1867
Cauliflower	473	9225	473	9283	479	9437
Cucumber	117	1652	116	1608	113	1638
Chillies (Green)	411	4363	400	4221	405	4272
Elephant Foot Yam	38	874	35	819	41	928
Mushroom		243		259		236
Okra / Ladyfinger	531	6466	523	6416	546	6700
Onion	1624	26641	1914	31129	1940	31703
Parwal / Pointedgourd	62	725	61	741	63	752
Peas	567	5846	549	5680	582	6076
Potato	2203	56173	2208	53603	2200	53575
Radish	207	3263	209	3347	206	3304
Pumpkin / Sitaphal / Kaddu	106	2205	106	2218	109	2299
Sweet Potato	106	1121	106	1119	106	1159
Tapioca	183	6941	134	4742	186	6853
Tomato	845	21181	831	20300	841	20336
Other vegetables	1517	21550	1541	22555	1552	22931
Total Vegetables	**10859**	**200445**	**11065**	**199882**	**11280**	**204613**
Aromatics and Medicinal	**653**	**825**	**650**	**767**	**583**	**561**
Flowers Cut		828		791		638
Flowers Loose	322	2152	267	2095	276	2298
Total Flowers	**322**	**2980**	**267**	**2886**	**276**	**2936**
Honey		**125**		**125**		**133**
Plantation Crops						
Arecanut	794	1563	774	1393	777	1399
Cashewnut	1159	738	1166	774	1174	675
Cocoa	103	27	102	28	106	28
Coconut	2199	14301	2229	13657	2110	13274
Total Plantation	**4255**	**16629**	**4271**	**15852**	**4167**	**15377**
Spices						
Ajwain	42	36	40	28	39	28
Cardmom	85	34	84	26	86	27
Red Chillies (Dried)	702	2049	678	1874	694	1866
Cinnamon/Tejpata	2	5	3	6	2	4
Celery, Dill & Poppy	25	31	25	30	25	30

Crops	2020-21		2021-22		2021-22	
	Final		(First Advance Estimate)		(Second Advance Estimate)	
Clove	2	1	2	1	2	1
Coriander	656	891	640	811	632	801
Cumin	1087	795	1037	725	1037	726
Fenugreek	156	241	169	252	167	248
Fennel	83	137	82	137	82	137
Garlic	392	3190	393	3208	401	3277
Ginger	205	2225	193	2219	191	2121
Nutmeg	24	16	24	15	24	15
Black Pepper	309	141	284	92	288	97
Vanilla	0	0	0	0	0	0
Saffron	4	0	4	0	2	0
Tamarind	42	156	46	174	45	162
Turmeric	293	1124	306	1176	350	1331
Mint (Mentha)	347	46	336	39	346	35
Total Spices	**4457**	**11117**	**4344**	**10816**	**4414**	**10907**
Total	**27476**	**334603**	**27563**	**333251**	**27738**	**341629**

Source: Department of Agriculture and Farmers Welfare

Horticulture

It is agriculture that deals with the plantations of the garden crop, especially that of vegetables, fruits, flowers, tuber crops, species, and ornamental or medicinal plants. These plants provide food and nutrition besides providing employment. In India, the horticulture sector contributes 6% of GDP and one-third of the agricultural output.

- Total Horticulture production in 2021-22 is estimated to be 341.63 Million Tonne, an increase of about 7.03 Million Tonne (increase of 2.10%) over 2020-21 (Final).
- Increase in production of Fruits, Vegetables and Honey while decrease in production of Spices, Flowers, Aromatics & Medicinal Plants and Plantation Crops over previous year, is envisaged.
- The Fruits production is estimated to be 107.10 Million Tonne compared to 102.48 Million Tonne in 2022-21.
- The production is estimated to be 204.61 Million Tonne, compared to. 200.45 Million Tonne in 2020-21.
- Onion production is estimated to be 31.70 Million Tonne against 26.64 Million in 2020-21.
- Potato production isexpected to be 53.58 Million Tonne, compared to 56.17 Million Tonne in 2020-21.

- Tomato production is expected to be 20.34 Million Tonne, compared to 21.18 Million Tonne in 2020-21.

CONCLUSION:

This paper set out to explain Advantages of Agricultural diversification. It Increase in income of small farm holdings, Less risk for price fluctuation, Climatic variability, Balancing food demand, Increasing the production of quality fodder for livestock animals, Beneficial for conserving natural resources, It is beneficial for most rural people as they can opt for profitable supplementary employment other than agriculture. It paves the way for earning a better income and improves the standard of living. Indian agriculture is diversifying during the last two decades towards high value commodities (HVC) i.e, fruits, vegitables, milk, meat, and fish product.

Diversification of agriculture towards horticulture can play a significant role in bringing sustainable development in the agriculture sector. Dependence on traditional method of cultivation will be perilous venture, both from consumption and production perspective. For sustainable Agriculture growth, there is a need to switch from traditional practices to new methods of cultivation. Diversification of agriculture can be used as an effective tool to bring sustainable development of the sector. Development of new cultivars of horticulture crops that are resistant to pest and diseases, short duration and produce good yield under stress condition and tolerant to high temperature as well as adoption of environment friendly technology (organic farming) and judious use of land and water resources are the most effective way to sustain the productivity and minimize the effect of climate changes. The overall rate of diversification is slow in the country. Have to need promote the agricultural diversification. Proper strategies have to be envisaged to meet the challenges of vagaries of climatic changes and its detrimental effect on environment, agriculture productivity and future food security of the country.

References:

[1] Chand, Ramesh (1996). "Diversification through High Value Crops in Western Himalayan Region: Evidence from Himachal Pradesh", Indian Journal of Agricultural Economics Department of agriculture, cooperation and farmers welfare, Ministry of Agriculture and Farmers Welfare, Government of India (2014), "Agriculture Statistics at a Glance''.

[2] Gupta, R.P. and S.K. Tewari (1985). "Factors Affecting Crop Diversification: An Empirical Analysis", Indian Journal of Agricultural Economics.

[3] Haque, T. (1995) (ed.) Small Farm Diversification – Problems and Prospects. New Delhi: National centre for Agricultural Economics and Policy Research.

[4] Jha, B., N. Singh and B. Mohanty (2009a). "Patterns of Agricultural Diversification in India", IEG. N.P. Singh, Ranjit Kumar and R.P. Singh:

Diversification of Indian Agriculture: Composition, Determinants and Trade Implications.

[5] Pratap S. Birthal, P.K. Joshi, Sonia Chauhan and Harvinder Singh: Can Horticulture RevitaliseAgricultural Growth.Raymond Guiteras;y Department of Economics, MIT, December 2007: The Impact of Climate Change on Indian Agriculture.