

Economic Impact of Flood on Agriculture- A Case Analysis of Spice Crops in Kerala

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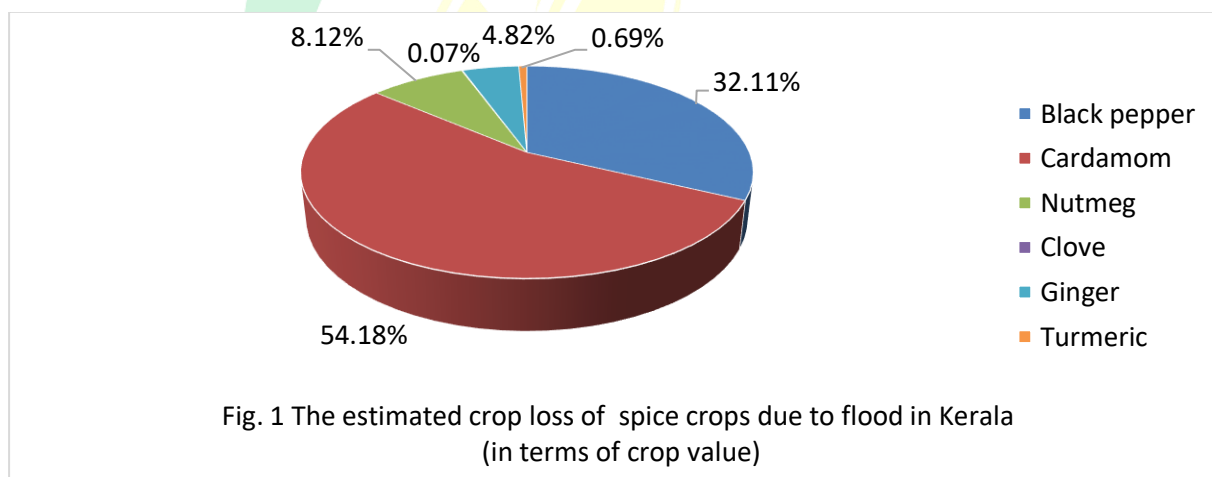
Agriculture is the key stone of the Indian economy and is heavily dependent on the rainfall, when prone to floods it has an adverse effect on our country's economy. The flood caused huge loss to Kerala's agriculture and dairy sector could impact the state's already deficient food production as well as the livelihood of lakhs of farmers. The back to back floods in 2018 and 2019 smashed the state's agriculture production in which the plantation and spice crops are the worst hit. The cultivated area of spices crops in Kerala is around 1,62,660 ha, which contributes to production of 140,000 tonnes per annum.

Wayanad and Idukki together account for nearly 60 per cent of the total area under spices in Kerala. The crop loss data collected and compiled by the agricultural department of the state was further firmed up by taking into account the crop specific indirect damage due to biotic and abiotic factors to arrive at the production impact of the natural calamity.

Table 1 Summary of production loss in spices

Crop	Area affected (ha)	Production loss in 2018-19 (tonnes)	Value (Million INR)
Black pepper	26613	10700	4027
Cardamom	15655	6600	6795
Nutmeg	4400	2749	1018
Clove	160	13	9.3
Ginger	1030	4100	605
Turmeric	395	976	86.8
Total	48,253	25138	12541.1

The data revealed that a total cultivated area of 48,253 ha under major spice crops such as black pepper, cardamom, nutmeg, clove, ginger and turmeric got severely affected. The Production loss of black pepper is estimated to be 10,700 tonnes valued at 4,027 million INR at the prevailing average price for the period 2018-19. Cardamom contributed for highest loss with in terms of value, which is 54.18 per cent of the total losses among the spice crops. An area of 15,655 ha and production loss of 6,600 tonnes occurred to cardamom alone. Another major crop strike was happened to the perennial crops, nutmeg and clove. The loss in quantitative terms of Nutmeg is pegged at 2,749 tonnes, valued at 1,018 million INR and 13 tonnes of clove with a value of 9.3 million INR is also accounted under crop loss. The two biannual rhizomatous spice crops, ginger and turmeric have met with a production loss of 16.31 and 3.88 per cent, which is valued at 605 million INR and 86.5 million INR respectively.



Altogether, around 48,253 ha of cultivated area of spice crops has been affected, which led to a production loss of 25,138 MT of spices having a value of 12,541 million INR. Whereas, if the variable and fixed cost of inputs, the cost of re-establishing the crop, the long gestation period to attain full bearing etc. are taken into account., the loss would intensify as 39,012 million INR.

An analysis of soil and plant samples collected during the survey indicated widespread presence of Phytophthora in black pepper, cardamom and nutmeg samples, Pythium in cardamom and ginger and shot hole borers (*Xylosandrus* sp.) in nutmeg. The range of observed values for soil physico-chemical properties in flood affected areas were within the

normal range usually observed in spice growing soils. Necessary measures for management of pests and diseases as well as soil amelioration need to be taken up in all flood affected gardens. The various Institutional stakeholders such as ICAR, State Agriculture Department, Kerala Agricultural University, KVKs, ATMA etc need to be seamlessly linked for effective technology dissemination. The research institutions in the country have an responsibility to undertake studies in the following areas for bringing up farmers from this distress caused by flood by suggesting and implementing policy measures such as

- Interest free credit support for sustenance of livelihood activity
- Flood zoning of the entire agricultural area in the state
- Implementing village level crop-weather forewarning systems
- A package for replanting of the affected areas with HYV & tolerant varieties

The focus should be on protecting the existing plants and launching a large-scale replanting programme with high-yielding varieties.