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RESEARCH ARTICLE

INDIGENOUS TECHNOLOGY KNOWLEDGE OF RICE

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ABSTRACT

The ITK is an explicit or "Codified" knowledge that is transmittable in formal, systematic language. On the other hand, ITK is a tacit knowledge of the local or indigenous people, which is personal, content-specific, and therefore hard to formalize and communicate. Rice is an important crop in India occupying 43 million hectares of land representing various ecosystems. The crop is cultivated 2 meters below the sea level in Kuttanadu region of Kerala and 2500 meter above sea level in Jammu Kashmir. The list of indigenous technical knowledge followed by the rice farmers are listed below under various headings viz., seed treatment, growth management, weed management, pest and disease management and storage pest management.

INTRODUCTION

The ITK is an explicit or "codified" knowledge that is transmittable in formal, systematic language. On the other hand, ITK is a tacit knowledge of the local or indigenous people, which is personal, content-specific, and therefore hard to formalize and communicate. Local or indigenous people acquire knowledge by actively creating and organizing their own experiences. Thus, the (traditional) knowledge that can be expressed in words and numbers represents only the "tip of the iceberg" of the entire body of knowledge possessed by indigenous people. As Michael Polanyi (1966) puts it, "We can know more than we can tell".

ITKs in Rice Farming

Rice is an important crop in India occupying 43 million hectares of land representing various ecosystems. The crop is cultivated 2 meters below the sea level in Kuttanadu region of Kerala and 2500 meter above sea level in Jammu Kashmir. This type of geographical and wide climatic variation provided the farmers ideal situations to develop their own indigenous practices in rice cultivation. Since rice as a food crop is cultivated throughout the country by all farmers (tribals to most progressive farmers) there are lot of native technologies evolved over a period of time. Since rice has many types of varieties, cultivation practices, soil types, the management practices differ from place to place. This has provided ample scope for the use of ITKs evolved over generations. Compared to any other food crop, rice attracts maximum number of pests

and diseases and the rice farmers have developed their own method of pest and disease management strategies. The list of indigenous technical knowledge followed by the rice farmers are listed below under various headings viz., seed treatment, growth management, weed management, pest and disease management and storage pest management.

Seed treatment

- Treatment of paddy seeds in diluted bio gas slurry for 12 hours increases resistance of seedlings to pests and diseases.
- Soaking the paddy seeds in diluted cow's urine before sowing, considerably reduces the incidence of leaf spot and rice blast.
- Presoaking of paddy seeds in milk increases its resistance against '*Tungro*' virus and 'stunt' virus
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- Presoaking of paddy seeds in milk increases its resistance against '*Tungro*' virus and 'stunt' virus
- For control of red leaf spot disease in paddy, the seeds are soaked in 'Pudina' leaf extract (*Mentha sativa*) for 24 hours.

Growth management

- During panicle formation in paddy, the flowers of *Cycas circinalis* are placed on sticks in paddy fields @ 4/ac. Its unpleasant odor repels ear head bugs.
- About 30 kg. of tamarind seeds are applied for an acre of paddy field 1 day after transplanting to boost up the crop growth and yield.

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- 'T' shaped bamboo stands are placed in many places in the paddy fields so that birds can sit on them and feed on the larvae and adults of rice pests.
- Sowing on eighteenth day (Aadipperukku) of Tamil month Aadi (Jul-Aug.) ensures good harvest.
- Daincha (*Sesbania spp.*) seeds are shown on paddy main fields when paddy nursery is raised and the grow up daincha is ploughed in-situ during field preparation.
- Plough the main field for four to six times for better yield.
- Good harvest can be obtained from the crop transplanted during Aavani i.e. Aug. - Sep.
- The crop transplanted during October-November will give reduced yield.
- The rice crop will establish better if it is transplanted along the wind direction.
- Planting the 'samba (Aug), crop thickly and 'Navarai' (Feb.) thinly.
- Practice sheep penning during summer to get more yield.
- Practice sheep penning for the first season and green leaf manure for the second season for better yield.
- Apply 100 kg. of pig manure for one acre of rice at 10 days after planting to get higher yield.
- Apply the Neem seeds @ 40 kg / ac as basal to get more yield as compared to the equal quantity of Neem cake.

Weed management: Irrigate the fields, allow the weed seeds to germinate and then plough the fields to incorporate the weeds into the soil before sowing or transplanting of rice crop to control weed growth.

Pest management

- Cultivation of sun hemp helps to control the nut Grass (*Cyperus rotundus*) weed Application of *Calotropis* gigantean as green leaf manure will prevent thrips attack in the nursery.
- Neem (*Azadirachta indica*) oil cake extract is sprayed to control Thrips in rice.
- Dragging the branches of country Ber or Aloe sp. on the affected field to control the leaf roller.
- Neem oil is mixed with water @ 30ml./lit. and sprayed to control stem borer in rice.
- Dusting chulah ash in the early morning to control stem borer and ear head bug.
- To control the ear head bugs, 10 kg. of cow dung ash is mixed with 2 kg. of lime powder and 1 kg. of powdered tobacco waste and dusted on the rice crop during morning hours.
- Hundred ml. of leaf extract of "Karuvel" (*Acacia nilotica*) and 10 kg of cow dung are dissolved in 10 lit. of water and sprayed on the rice crop to control ear head bug.
- Growing or planting *Calotropis* at 12 feet interval on all sides of paddy fields to control the hoppers.
- Applying Neem cake before last plough to control root rot and nematode problem.

Disease management

- A mixture of 5 kg. of common salt and 15 kg. of sand is applied for 1 acre to control brown spot disease.
- Soaking the paddy seeds in 20% mint leaves solution before sowing will control the brown leaf spot.
- Spraying the leaf extract of *Adaathoda vasica* to control rice *Tungro*.

Storage pest management

- Palmyra (*Borassue flabellifer*) fronds are tied on to poles and kept on the corners of rice fields so that the noise produced by them scare away the birds like ducks, sparrows etc. and save the grains being damaged.
- When one ear head contains about 100 grains, the yield will be 20-22 quintals/ac.
- One hundred and twenty grains found in a rice ear head indicates the full yield.
- Use large mud pots called 'Kudhir' as high as six feet for storing paddy grains for longer periods.
- Putting the leaves of notch (*Vitex negundo*) and pungam (*Pongampinnata*) inside the Kulumai to ward off storage pests.
- Mixing the paddy grains with the leaves of Pungam (*P.pinnata*) or notch (*V. Negundo*) or Neem (*Azadirachta Indica*) before storage to avoid storage pest attack.

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