Extent of Adoption of Identified ITKS by the Scheduled Caste Farmers on Rice Cultivation under Wetland Farming System

A. K. Rao Keluskar and P. Jeyaseelan

Research Journal of Agricultural Sciences
An International Journal

P- ISSN: 0976-1675
E- ISSN: 2249-4538

Volume: 12
Issue: 06

Res. Jr. of Agril. Sci. (2021) 12: 2113–2119

CARAS

Res. Jr. of Agril. Sci. (Nov-Dec 2021) 12(6): 2113–2119
www.rjas.org

Full Length Research Article

Extent of Adoption of Identified ITKS by the Scheduled Caste Farmers on Rice Cultivation under Wetland Farming System

A. K. Rao Keluskar*[1] and P. Jeyaseelan[2]

Received: 24 Aug 2021 | Revised accepted: 01 Nov 2021 | Published online: 29 Nov 2021
© CARAS (Centre for Advanced Research in Agricultural Sciences) 2021

ABSTRACT

The study was conducted in Cuddalore district of Tamil Nadu, to assess the adoption on indigenous technical knowledge practices in wetland rice cultivation among the scheduled farmers. Cuddalore district has been administratively divided into ten taluks and thirteen blocks. The selection of the respondents is based on the probability proportionate sampling method which is followed to select a sample size of three hundred respondents. The data were collected from each respondent through personal interview methods with help of interview schedule. The results revealed that, nearly half of the respondents (50.00%) had high level of adoption followed by medium level (26.66%) and low (23.34%) level of adoption in indigenous rice cultivation practices.

***Key words*:** Indigenous technical knowledge, Adoption, Rice cultivation, Wetland farming

Indigenous technical knowledge is a type of local knowledge that is specific to a particular culture or society. This ITK practices serves as the society's information basis, facilitating communication and decision-making. ITK practices are passed down by word of mouth from generation to generation. The indigenous practices have their own importance as they have stood the test of time and have proved to be efficacious to the local people and forms the basis for their link with nature, and the varied levels refinement depend on the level at which the society finds itself in the social evolutionary basis. Indigenous technical knowledge and practices have their own importance as they have stood the test of time and have proved to be efficacious to the local people and forms the basis for their link with nature, and the various levels of refinement are dependent on the social evolutionary basis at which the culture finds itself [1].

MATERIALS AND METHODS

Adoption is defined as the decision to make full use of a new idea as the best course of action available. In this study extent of adoption of ITK practices by the scheduled caste farmers of wetland farming system, was identified for the present study. Rogers [2] defined the adoption as the decision to make full use of a new idea as the best course of action available. In this study, adoption was operationalized as, whether an individual SC respondent had practiced ever each of the selected ITK practices. Totally 139 ITK practices were identified and the individual was given one score for the adoption of each item. The respondents were also asked to mention the reasons for adoption and non-adoption.

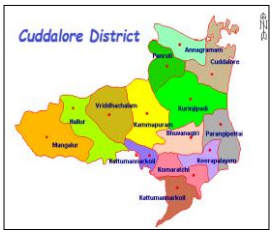

Fig 1 Map showing the study area

Fig 2 To Interact with the farmers group

Fig 3 Interaction with farmers

Fig 4 Seasonal / belief about farming practices

The selected ITK practices were narrated to the respondents one by one, each time enquiring whether they had adopted the practice in the previous years. If the answer was "Yes", a score of one was assigned and if the answer was "No", zero score was given. The scores obtained for all

* **A. K. Rao Keluskar**
✉ rao.agri@gmail.com

[1-2] Department of Agricultural Extension, Faculty of Agriculture, Annamalai University, Annamalai Nagar - 608 002, Tamil Nadu, India

the practices were summed up for each respondent and the adoption score was arrived at. Then the adoption quotient for each individual was worked out by using the following formula as used by Sundaramari [3] and Husain [4].

$$\text{Adoption quotient} = \frac{\text{Number of indigenous agricultural practices adopted}}{\text{Number of indigenous agricultural practices applicable}} \times 100$$

Based on the adoption quotient values, respondents were classified into low, medium and high by using cumulative frequency method.

RESULTS AND DISCUSSION

ITK practices are developed by farmers through trial and error method. Some of the ITK practices have been replaced by some technologies and some have been disappeared due to communication gap between generations and importance is given to the new technologies. Nowadays, it is being felt by many people to promote the adoption of ITKs since they are cost effective, locally available and eco-friendly. Hence, the data were collected on the adoption of selected 139 ITKs by the farmers on rice cultivation under wetland farming system (Table 1).

Table 1 Distribution of respondents according to their overall adoption of ITKs on rice cultivation under wetland farming system (n=300)

Category	Number	Percentage
Low	70	23.34
Medium	80	26.66
High	150	50.00
Total	300	100.00

Extent of overall adoption of ITK practices on rice cultivation by the scheduled caste farmers, exactly half (50.00%) of them had high level of overall adoption of ITKs, only (23.34%) percentage of low levels adoption in ITKs [5].

Practice-wise adoption of ITKs by scheduled caste farmers on paddy cultivation

The findings on the practice-wise adoption of ITKs by scheduled caste farmers on paddy cultivation are presented in (Table 2). A total of 139 ITK practices on paddy cultivation were identified which were practiced by the scheduled caste farmers. These practices were grouped into four major headings namely: 1) Crop management, 2) Crop improvement, 3) Crop protection and 4) Post-harvest.

Table 2 Distribution of respondents according to their practice-wise adoption of ITKs on rice cultivation under wetland farming system (n=300)

ITK practices	Rational or Irrational	Mean score	Adoption	
			No	%
A. Crop management				
(i) Season /Beliefs				
July-August (*Adi*) is the apt season for *Samba* varieties of paddy.	R	3.60	257	85.66
Sowing on eighteenth day of (Aadipperukku) of Tamil month Aadi (Aug) ensures good harvest	R	3.40	237	79.00
(ii) Indigenous seed treatment in paddy				
Gunny bags containing paddy seeds are soaked in water tanks for 24 hours and kept as such in a dark place for another 24 hours and it will result in the sprouting of seeds on third day	R	3.66	282	94.00
Soaking a handful of seeds, tied in a white cloth, in water for 12 hours and keeping the same in a dark place for 24 hours for testing the germination	R	3.53	213	71.00
Soaking the paddy seeds in diluted cow's urine before sowing considerably reduces the incidence of leaf spot and paddy blast	R	3.26	12	04.00
(iii) Nursery management				
Applying farm yard manure (FYM) and green leaf manure (GLM) to the nursery field	R	2.80	263	87.66
Cow dung, Neem leaves, Leaf manure	R	3.40	289	96.33
Dusting fresh wood ash on the nursery to control or prevent the pest incidence. Application of kolingi (Tephrosiapurpuria), Muthumanickam and Erukku (Calotropis gigantean).	IR	1.33	81	27.00
FYM, erukku, Glyricidia, Nochi, kolingi	R	2.53	263	87.66
FYM, Glyricidia and Neem as leaf manure for better growth and applying aanai leaf for dense leaf colour and growth.	R	3.40	247	82.33
FYM, Neem leaves, Erukku, Poovarasan leaves, Nochi, and Glyricidia for better growth.	R	2.53	234	78.00
If nursery is raised under semidry condition, the crop will withstand pest and disease attack as well as drought condition	IR	2.40	163	54.33
In paddy nurseries, for controlling thrips, the whole nursery is irrigated so as to submerge the whole plant for some time and the water is drained to wash away the insects	IR	1.80	63	21.00
More FYM is applied on the nursery for better seedlings	IR	2.46	52	17.33
One week after applying leaf manure in the nursery bed filter the water, Levelling should be done. Soak the nursery bed in water for 1 day, 2nd day release the water,	R	2.93	253	84.33

3rd day germination takes place, again dry the bed (alternate wetting and drying). There should be no stagnation water. To maintain better population.				
The place with higher elevation in the field is selected for raising paddy nursery	R	4.00	300	100.00
Water is drained from the nursery in the next day morning succeeding the day of sowing and kept for 24 hours and again irrigated on third day for better rooting of seedlings	R	3.00	276	92.00
(iv) Indigenous cultural Practice				
Alternate wetting and drying results in good paddy crop	R	3.66	300	100.00
Egg solution (10 eggs of country breed Hens were selected, crushed along with egg shells and soaked in cow urine and it is kept for 20 days) for better seed set.	R	3.80	47	15.66
It is better to irrigate in the dawn or dusk	R	3.06	300	100.00
Less water is required for well puddle soil	R	3.42	53	17.66
Meenamilam (Fish Amino acid) is given for better seed set.	R	2.66	15	05.00
(v) Main Field Preparation				
A well puddle soil requires lesser water.	R	2.80	45	15.00
Always maintaining a water level of 2 inches is better.	IR	1.73	92	30.66
Application of large quantity of FYM every year in the main field will give higher yield.	R	2.80	269	89.66
Applying FYM, Kolanchi and Senapu	R	3.06	281	93.66
Bunds should be higher enough in the fields to retain adequate water	R	3.86	300	100.00
Cattle penning is practiced during summer which helps to get better yield	R	3.40	142	47.33
Cattle penning is practised during summer which helps to get better yield.	IR	1.73	53	17.66
Closer spacing will give more yields.	R	3.00	173	57.66
Daincha (*Sesbania* spp.) seeds are sown on paddy main fields when paddy nursery is raised and the grownup daincha is ploughed in-situ during field preparation.	R	3.26	262	87.33
Dainchia, Senapu and Sheep dung is applied	R	2.53	107	35.66
During ear head formation stage more water is maintained in the main field	R	3.26	281	93.66
For getting more yield neem cake 100 kg/ac and groundnut cake 100 kg/ac are applied in the main field	R	2.80	52	17.33
Generally, paddy crop is irrigated once in 2 to 3 days.	R	3.40	300	100.00
Good harvest can be obtained from the crop transplanted during Aavani i.e., Aug-Sep.	IR	1.53	193	64.33
In the main field glyricidia virali (*Dodaneaviscosa*), aavaram (*Cassia auriculata*), neem (*Azadirachta indica*), kolingi (*Tephrosia populne*), vadamadakki (*Delonix elata*) are used as green leaf manure.	R	2.53	97	32.33
Levelling, sheeppenning, Kolingi and thakkai poondu	R	3.26	81	27.00
Once in 10 days Amirthakaraisal (2kg jaggarey + 10 litres Cow urine + 2kg Black gram powder + 10 kg Cow dung mixture is dissolved in 200 litres of water and kept for 3 days, then the mixture is turned upright down, 4th day it is again mixed with water and sprayed)	R	3.50	78	26.00
Paddy field is puddle well to destroy the weeds and to reduce the water loss by seepage and percolation.	R	3.20	300	100.00
Paddy husk ash is applied on the main field as manure which increases yield.	R	3.00	51	17.00
Panchakavya is given 2 times (30 days once)	R	3.40	61	20.33
Plastering of field bunds at last ploughing to reduce seepage loss of water, weed growth and to control the crabs.	IR	2.40	72	24.00
Ploughing the main field for four to six times for better yield.	IR	2.13	174	58.00
Sheep penning is practiced, Application of FYM, Applying green leaf manures (Senapai, Daincha, Susbania). These practices promote better growth.	R	3.05	79	26.33
Sesbania and FYM application	R	3.13	243	81.00
Sheep penning is practiced for first season and green leaf manure for the second season is practiced.	R	3.00	89	29.66
The ash of the paddy husk is applied on the main field as manure	R	3.30	18	06.00
The leaves of Erukku (Calotropis gigantean); Aavarai (Cassia auriculata), Nochi (Vitexnegundo), Glyricidia maculate and Kolingi (Tephrosiapurpurea) are used as green leaf manures.	R	3.40	286	95.33
The yield increases if sheep dung or goat dung or pig dung is applied under irrigated condition.	R	2.93	85	28.33
The yield will be more if sheep dung or pig dung is applied under irrigated condition	R	2.73	136	45.33
Topping the aged seedlings by one third height and planting them in 4 to 6 numbers per hill and with more seedlings per unit area so as to compensate growth loss and to ensure population.	R	2.93	86	28.66
Transplanting during Oct-Nov is not advisable as yield is reduced	R	3.40	128	42.66
Transplanting is taken along the wind direction and not against wind direction	R	3.40	300	100.00

Trimming the field bunds during summer to destroy the alternate hosts of pests/ pathogens	R	3.00	186	62.00
Trimming the field bunds during field preparation to control weeds, pests & diseases and rats.	R	3.40	300	100.00
Using a wooden levelling board to level the main field to before transplanting in order to avoid inundation and drying in different places and for better drainage too	R	2.86	300	100.00
(vi) Indigenous weed control methods in paddy				
During first weeding the soil around root zone is disturbed which enhances tillering	R	3.40	252	84.00
During summer, bunds are crammed to destroy weeds	R	3.00	231	77.00
For controlling korai (*Cyperus rotundus)* plough the field and maintain two inches of water for 15 days	IR	2.46	239	79.66
Irrigating the fields, allowing the weed seeds to germinate and then ploughing the fields to incorporate the weeds into the soil before sowing or transplanting of paddy crop to control weed growth	R	3.00	189	63.00
(vii) Indigenous methods of paddy soil fertility management				
For *in situ* manuring, weeds were allowed to grow on paddy fields and then trampled at appropriate time. In large parts of Tamil Nadu, the spreading of wild shrub such as wild indigo (*Wrightiatinctoria*) and leaves of *Pongamiapinnata* and other trees are much used on paddys, principally on paddy fields. The fresh shrubs and leaves were spread on the fields and then trodden by feet.	R	3.06	119	39.66
If clay soil, 10 load pressmud and ash were decomposed and applied to the soil.	R	2.86	42	14.00
B. Crop improvement				
(i) Indigenous traditional paddy varieties				
Athur Kitchili Samba yields 880 kg / hectare. It is cultivated in Kumbakonam, Tamil Nadu.	R	2.90	142	47.33
KarSamba, It can be grown in areas prone to water logging and also in saline soils. Highly resistant to pest and disease and is cultivated in Cuddalore district, Tamil Nadu.	IR	2.16	192	64.00
Kitchili Samba This variety is highly suitable for the South Indian meal and also used for making a special dish called 'biriyani'. This variety is highly suitable for dry sowing. Highly resistant to pest and disease. It is cultivated in Cuddalore district, Tamil Nadu.	R	2.80	300	100.00
Kouninel The paddy of this variety is ideal for preparing the traditional South Indian breakfast foods like idly and dosa.	IR	2.46	300	100.00
Mapiilai Samba This paddy is said to improve digestion, cure mouth ulcers and peoples with diabetic also can consume this paddy. It is cultivated in Tamil Nadu	R	3.23	300	100.00
White Ponni it gives better yield and is highly cultivated in Cuddalore district, Tamil Nadu.	R	3.26	300	100.00
Seeraga Samba, Since the paddy of this variety resembles the shape of a spice "Seeragam" it has got the name "***Seeraga Samba***". The paddy is extremely fine and aromatic, hence it is used for making 'Biriyani'. Since it is aromatic, it fetches the highest paddy amongst all indigenous paddy varieties of Tamil Nadu.	R	3.26	300	100.00
C. Crop protection				
(i) Indigenous insect pest ,anagement				
'T' shaped bamboo stands are placed in many places in the paddy fields so that the birds can sit on them and feed on the larvae and adults of paddy pests	R	2.93	293	97.66
250 gms of vasabu (Acoruscalamus) is powdered, dissolved in water and kept overnight, in the morning the clear solution is mixed with 200ml of neem oil and is sprayed to prevent pest attack.	R	3.20	63	21.00
Adathoda leaves soaked in cow urine and sprayed for control of pests.	IR	2.06	92	30.66
Alternate wetting and drying helps to reduce pest incidence	R	2.86	300	100.00
Applying neem cake in paddy fields as basal manure helps to protect the crop against BPH and stem borer at later stages	R	3.26	231	77.00
Beating drums is an effective method to scare away not only birds but also thieves. This is in practice in Serapattu village of Villupuram district in Tamil Nadu. When crops are at maturity stage, this practice is very effective.	R	2.86	287	95.66
Cashew tree branches are cut and planted in the field to prevent movement and boring action of stem borer larvae in paddy fields by the paddy farmers in Tamil Nadu.	IR	1.86	26	08.66
Clipping the seedling tips to control the stem borer	R	3.60	236	78.66
Thanjavur rat trap is used for rat control. It is practiced in Cuddalore district of Tamil Nadu.	R	3.6	300	100.00
During panicle formation stage in paddy, the flowers of *Cycascircinalis*are placed on sticks in paddy fields @4/ac. Its unpleasant odour repels ear head bugs. This is practiced in Tamil Nadu	IR	1.66	46	15.00

Farmers pulverize neem seed kernel and soak in equal amount of water over night and spray it on the paddy crop after filtration to control Brown Plant hoppers and Green Leafhoppers in Tamil Nadu.	R	3.33	49	16.33
Fully cooked parboiled paddy is mixed with furadon granules and spread in the bunds, near burrows and other rat infested places in the paddy fields. Rats are attracted to the smell of parboiled paddy and eat it. After consuming the parboiled paddy, the rat will die within hours. This is practiced in Tamil Nadu.	R	2.86	227	75.66
Grinding well and dissolving neem cake in water and spraying the decanted solution on 10th, 25th and 40th days after planting to control BPH in paddy crop	R	3.13	242	80.66
If severe pest incidence takes place, Agni asthiram (1kg Garlic + 2kg Green chilli + 2kg Ginger mixture is boiled, filtered and sprayed 2 times). It gives bright greenish colour that repels pest.	IR	1.93	27	09.00
Kattu Aamanakku leaves soaked in cow urine and sprayed for controlling pests.	IR	1.86	53	17.66
Mixture of neem oil and pungam (*Pongamia pinnata*) oil at 1:1 ratio is sprayed to control leaf roller	R	3.40	39	13.00
Neem (*Azadirachta indica*) oil cake extract is sprayed to control thrips in paddy	R	3.46	218	72.66
Neem cake is applied as basal manure which helps to protect the paddy from BPH at later stages in Tamil Nadu	R	3.53	300	100.00
Neem leaves + Pungam leaves + Nochi + Erukku and Aadathoda leaves are taken 5kg in each, it is mixed with 15 litres of cow urine and kept for 15 days after that it is sprayed @ 3 litres/ ac to control leaf sucking pests and shoot pests. If no pests problem, then the mixture is added with manure and applied.	R	2.53	19	06.33
Neem oil 300ml, kerosene 250ml and soap powder 150gms are dissolved in 13 litres of water and is sprayed to control leaf roller	IR	1.80	21	07.00
Neem oil is mixed with water @ 30ml/lit and sprayed to control stem borer in paddy	IR	2.00	43	14.33
Neem oil, Pungam oil and soap nut powder mixture are used to control leaf folder at 1:1:1/2 ratio by the farmers of Tamil Nadu.	R	3.40	33	11.00
Neem oil, water, and detergent in the ratio of 1:1:1 is used to control BPH in paddy by farmers of Tamil Nadu.	R	3.00	245	81.66
Oomatham, Vemba, Erukku, Pappaya and Pungam leaves are crushed and mixed with cow urine and it is kept for 15 days. This odour repels pests. Neem cake is also applied	IR	2.00	93	31.00
Sacks filled with neem cake are immersed in irrigation channel to control termites by the farmers of Tamil Nadu	IR	1.46	179	59.66
Spraying tobacco leaf extract to control BPH and green leaf hopper	IR	2.06	57	19.00
The pest and disease incidence will be less if we apply sheep/ goat/ pig dung under irrigated condition	IR	1.60	38	12.66
To control leaf folder in paddy, ducks are released in the field to feed on the pest. This is practiced by farmers in Kruppathevanpatty village in Theni district in Tamil Nadu	R	3.33	252	84.00
To control leaf hopper neem cake is soaked in water and sprayed	R	3.40	278	92.66
To control pests in paddy, farmers generally spray chilli and tobacco extracts. For the last five years 20% of farmers are using this technique in Nachlur village, Karur district in Tamil Nadu	IR	1.66	300	100.00
Vasambu (*Acotus calamus)* is powdered and dissolved in water and kept overnight. The next day, the clear solution is mixed with 200 ml of neem oil and is sprayed on the paddy crop to prevent pest attack by the farmers of Tamil Nadu.	R	3.06	19	6.33
Vasambu (*Acotuscalamus)* is powdered and used for pest control	IR	2.46	190	63.33
(ii) Paddy disease management				
Application of neem cake as basal manure helps to protect paddy crop from brown plant hopper at the latter stage as reported by the farmers of Tamil Nadu.	R	2.86	232	77.33
Sacks filled with 8kg of neem cakes are immersed in irrigation channels to control stem borer, bacterial leaf blight and gall fly. The cake is used 18-20 days after planting and has to be replaced every 25 days	R	3.13	187	62.33
Soaking the paddy seeds in diluted cow's urine before sowing considerably reduces the incidence of leaf spot and paddy blast. This is practiced in Tamil Nadu.	IR	2.00	08	02.66
To control root rot and nematode problem, before last plough neem cake is applied on the field	R	2.86	214	71.33
To control sheath rot and brown leaf spot, 3% neem oil solution or 5% neem kernel extract is sprayed	R	3.06	192	64.00
D. Post-harvest practices				
(i). Storage and post-harvest technology				
A vessel filled with water is kept inside the storing bag to attract and kill mother insects	R	2.83	297	99.00

About 50 gram pepper is packed in a muslin cloth or ordinary cloth and placed in paddy grain. Pepper smell drives away any storage pest. This practice is used for increasing the quality of paddy in storage. This practiced in Kerala and Tamil Nadu.	R	3.06	286	95.33
After harvesting, good and healthy seeds are selected with care to store them for next season. To store grains, a storage structure, i.e., bin is used. At the time of seed storage, *notchi* (*Vitexnegundo*), neem (*Azadiractaindica*) and *pungam* (*Pongamiapinnata*) leaves are mixed. Apart from mixing, a few leaves are spread at the top of seeds. On the top of it waste paper and paddy straw are spread to cover the surface. This is practiced in Tamil Nadu	R	3.3	300	100.00
Cholakuzhi, is a grain storage structure made by digging a pit at the ground level. Size of the pit is 5 m long and 5 m wide. Cow dung and *thumbai* leaf (*Leucasaspera*) extractare coated along the walls of the pit. Cereals and millets are stored and the opening is closed with lid.	R	3.13	246	82.00
After harvest, the paddy is sun dried well before storage	R	3.03	300	100.00
Collecting the seeds from early formed earheads	R	3.16	280	93.33
Ducks are allowed inside the fields after the harvest. This helps to reduce pest incidence in the next crop.	R	2.73	258	86.00
Eucalyptus wood ash is added with paddy to protect seeds during storage by farmers of Tamil Nadu	R	3.36	235	78.33
Farmers spread the seeds in the threshing floor or the drying yard, during the waxing moon days of Tamil month 'Thai' and keep the seeds for 7 days both during the night and day. The seeds absorb the dew during night and dries during the daytime. This practice improves the seed quality and grain yield.	IR	2.43	262	92.00
First seeds harvested during September-October are dried and stored in gunny bags. These stored seeds absorb moisture during the ensuing wet periods of north–east monsoon. Therefore, these seeds are dried in sunshine during January-February called "*Thai kaichal*" to reduce the moisture and to prevent the insect attack. Afterwards the seeds are stored in a tight container smeared with cow dung paste. This practice is called *Kottai*. The *kottai will* be stored till the next sowing season. The cow dung plastering prevents insect attack but does not hinder the biological activity of the seed inside. This is practiced in Tamil Nadu	R	2.96	263	87.66
For seed collection the field is identified during the growth stage (uniform and better growth) and is harvested separately	R	2.73	183	61.00
For storage pest control, powdered limestone (calcium carbonate) or fine slaked lime (1-2%) are mixed with paddy. This is prevalent in Tamil Nadu	R	3.16	244	81.33
Grains are stored in wooden *'thomabi'* having the size of 8'x4'x4'. Grains are also stored in wooden *kuthir*in Tamil Nadu.	R	3.26	300	100.00
In Tamil Nadu, coal fly-ash or paddy husk ash are added to paddy and then stored to control storage pests	IR	1.6	258	86.00
Large mud pot (single piece) called *kuthir*as high as 180 cm are used for storing paddy for longer periods. Cow dung is pasted inside the *kuthir*, which increases the keeping quality of grains. This very common in Tamil Nadu	R	2.9	300	100.00
Layers of neem (*Azadirachtaindica*) leaves are spread over grain bulks and neem fruits are crushed into the walls of cribs to control pests in Tamil Nadu.	R	3.3	300	100.00
Leaf powder of *Vitexnegundo*is admixed with paddy to control common storage pests. This is practiced in Tamil Nadu.	IR	1.86	219	73.00
Leaves of neem, *nochi*and *pungam*are placed between paddy bags to protect against storage pests by farmers in Tamil Nadu.	R	3.23	300	100.00
Leaves of Neyveli kattamanakku (*Ipomoea carneafistulosa*) are incorporated in the seeds of paddy to check storage pests by the farmers in Tamil Nadu.	R	2.50	263	87.66
Paddy grain is stored with fresh leaves of Margosa (*Azadirachtaindica*) to control insect attacks in Tamil Nadu.	R	3.26	300	100.00
Paddy grains are stored in large bin like masonry structure called 'Kulumai' to increase the keeping quality of grains and also to control the storage pests	R	2.96	293	97.66
Paddy seeds (after harvest) are sun dried for two days and sun shade dried for one day before storage	R	2.56	300	100.00
Paddy seeds are treated with *Adathoda vasica* to prevent against *S. cerealella* upto 3 months of storage. This practiced in Tamil Nadu	IR	2.13	217	72.33
Putting the neem leaves inside the paddy bags or keeping them between the bags to avoid storage pests	R	2.8	294	98.00
Rhizome powder of turmeric (*Curcuma longa*) is mixed with paddy and then stored to control weevils in Tamil nadu.	R	3.06	232	77.33
Seeds stored in big container (Kuthir), it is covered with neem leaves and the entire container is enclosed with cow dung and dried.	R	3.13	300	100.00

Stored paddy is covered with 25cm thick layer of paddy husk to protect from moisture and pests in Tamil Nadu.	R	3.1	292	97.33
The best grains are separated and collected at the threshing yard itself for seed purpose. This is practices almost in all the paddy growing states.	R	3.10	300	100.00
The paddy grains are mixed with the leaves of lotus (*Nelumbium speciosum*) before storing	IR	2.34	253	84.33
The seeds cleaned with salt and kept in Kuthir.	R	3.26	268	83.33
The stored paddy seed is dried during Jan-Feb for one day and it is locally termed as 'Thaikaichhal'	R	2.39	291	97.00
To avoid pest attack in stored paddy, nochi (*Vitex negundo*) and pungam (*Pongamiapinnata*) leaves are put inside the kuthir in Tamil Nadu	R	2.90	279	93.00

More than three-fourth (77.69%) of the total indigenous technical knowledge (ITK) practices on wetland farming system of rice cultivation were found to be rational. The remaining (22.31%) of the total indigenous technical knowledge (ITK) practices were rated as irrational. Crop management, majority (84.13%) of them was considered to be rational and the remaining (15.87%) practices were irrational. Crop improvement, more than two-third (71.42%) of the practices were observed to be rational and more than one-fourth (28.58%) of them were irrational. Crop protection nearly two-third (62.16%) of the ITK practices was noticed to be irrational and nearly two-fifth (37.84%) of them was irrational. Post-harvest technologies, majority (84.38%) of them was observed to be rational and the remaining (15.62%) were irrational.

Application of neem leaves + pungam leaves + nochi + erukku and aadathoda leaves mixed with 15 liters of cow urine to control leaf sucking pests and shoot pests (06.33%) is highly adopted practice in cent percent respondents in ITK practices on crop protection. Only (2.66%) of the respondents were soaking the paddy seeds in diluted cow's urine before sowing which reduces the incidence of leaf spot and paddy blast. This is the poor level of adoption by the SC farmers in ITK practices [6-7].

CONCLUSION

The indigenous rice cultivation practices were related to season and use of organic manure had high adoption, since most of these have already been adapted into the farming practice and did not sustain extra cost. Moreover, season is an important factor in agriculture. Though some practices were high on their adoption was found to be low, probably due to the reason that there was practical difficulty in practicing them. The indigenous practices in general are professed to be culturally compatible, safe, simple, cost effective and sustainable, though many of the farmers were aware about that, adoption was found to be low. Efforts should to be taken to promote these practices and make situations conducive for the adoption of these practices.

LITERATURE CITED

1. Nisha R, Arunachalam R. 2018. A Study on awareness and adoption of the rational ITKs in tea crop among the hilly tribes. *Asian Journal of Agricultural Extension, Economics and Sociology* 24(2): 1-9.
2. Rogers ME. 1983. *Diffusion of Innovations*. The Free Press, Collier Mac Millan Publishers, London.
3. Sundaramari M. 2001. Adoption and perceived effectiveness of indigenous agricultural practices in different farming systems. *Unpublished Ph. D. (Agriculture) Thesis*, Rural University, Gandhigram, India
4. Husain AS, Sundaramari M. 2013. Constraints faced by farmers in the adoption of indigenous horticultural practices. *Journal of Extension Education* 23(4): 5135-5141.
5. Sundaramari M, Ranganathan TT. 2013. *Indigenous Agricultural Practices for Sustainable Farming*. Agrobios, Jodhpur.
6. Meenakshi V. 2015. Documentation and validation of indigenous traditional knowledge practices in rice farming in Thanjavur district, *Unpublished Ph. D. Thesis*, Department of Agricultural Extension and Rural Sociology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu.
7. Sakeer HA. 2010. Knowledge, adoption and perceived effectiveness of indigenous horticultural practices in Kerala. *Ph. D. Dissertation*, Gandhigram Rural Institute, Gandhigram, India.