Cultivation of Colocasia in Tripura

The area under tuber crops being promising in Tripura is only 1593 ha having only 0.62 % of the net sown area . Mainly in Tripura, colocasia in uplands, dioscorea and jal kachu in low lands are cultivated.

Name of the Tuber crops	Area (ha)	Production (MT)	Av. Productivity (MT/ha)
Colocasia in uplands	1216	18,058	14.85
Greater Yam	4	75	19.75
Jal Kachu	373	5827	15.62

There are two types of jal kachu preferred by farmers are grown in Tripura and they are of green colour (Locally known as Gobinda) and Red (Locally known as Madan) are highly profitable producing an economic return of Rs 20 ,000 – 30,000 from an area of 1 kani land (0.16 ha) There is a need to conduct further study to evaluate the nutrient profiling of the kachu and its proximate composition with a approach to cultivate the kachu in unused lowlands having water stagnation.

Differences of Arbuscular mycorrhizal Fungi Diversity and Community between Three Experimental Plots in ICAR, Tripura Centre

We investigated the spore density, species composition, and diversity of arbuscular mycorrhizal fungi (AMF) in experimental plots of ICAR Research Station namely Agronomy Plot (AP), FSR-II and FSR-III, which are located adjacently in a slope in the subtropical and rainfed upland ecosystem of Lembucherra, West Tripura. AMF spores in the rhizosphere soils of representative plants in the three habitats were extracted by wet-sieving and decanting. A total of three isolates of native AMF including isolates from the genus *Glomus*, *Acaulospora*, and *Gigaspora* were extracted and identified morphologically. The highest spore density occurred in FSR-III that is organically managed, slightly lower in AP and lowest in FSR-II. Species of *Glomus* was dominant among the three species followed by *Acaulospora* and *Gigaspora*.The *Gigaspora* was dominant species of AMF in FSR-II and FSR-III while *Acaulospora* in AP. The spore density and dominant species of AMF were different in the rhizosphere of different subsistence crops. Spore density was recorded to be the highest in coconut, maize, been. Cluster analysis based on the similarity in AMF community composition indicated that the distribution of AMF was not random over space and that AMF community composition associated with a given plant species was greatly habitat-convergence. Following the analysis, we hypothesized that the effect of habitats on AMF communities were greater than that of the host preference to AMF.

Table 1: Effect of habitats and plant species on population densities of native arbuscular mycorrhizal fungi

Name of the plot	**Crop**	**Spore Density (No. of spores/100g soil) n=3**	**AMF species**
Agronomy	Chili	240	*Gigaspora calospora* (6)* , *Glomus sp.* (3), *Acaulospora laevis* (2), *Glomus fasciculatum* (1)
	Been	120	*Gigaspora calospora* (4), *Glomus sp.* (1), *Glomus mosseae* (1)
	Black gram	360	*Gigaspora calospora* (13), *Acaulospora laevis* (5), *Glomus sp.* (1)
	Maize 2nd plot	360	*Acaulospora laevis* (15), *Glomus fasciculatum* (2), *Glomus mosseae* (1)
	Maize 1st plot	400	*Acaulospora laevis* (18), *Glomus sp.* (2)
FSR-III	Banana	140	*Gigaspora calospora* (3), *Glomus mosseae* (2), *Glomus sp.* (2)
	Virgin soil	240	*Acaulospora laevis* (10), *Glomus sp.* (2)
	Coconut	500	*Acaulospora laevis* (17), *Glomus sp.* (3),*Gigaspora calospora* (2), *Glomus mosseae* (3)
	Pineapple	160	*Glomus sp.* (1), *Gigaspora calospora* (6), *Acaulospora laevis* (1)
	Pumpkin	130	*Gigaspora calospora* (3), *Glomus fasciculatum* (2), *Acaulospora laevis* (2)
	Been (Disha)	280	*Glomus sp.* (12), *Acaulospora laevis* (2)
	Been (Mani kanchan)	610	*Glomus fasciculatum* (13), *Glomus mosseae* (5), *Gigaspora calospora* (7), *Acaulospora laevis* (6)
	Lemon	180	*Acaulospora laevis* (7), *Glomus sp.* (2)
FSR-II	Colocasia	280	*Glomus sp.* (7), *Acaulospora laevis* (3), *Glomus fasciculatum* (1)
	Elephant Foot Yam (Sreearthora)	180	*Gigaspora calospora* (2), *Glomus sp.* (5), *Acaulospora laevis* (2)
	Dioscoria	150	*Glomus mosseae* (1), *Acaulospora laevis* (3), *Glomus fasciculatum* (3)
	Elephant Foot Yam (Sree badama)	220	*Gigaspora calospora* (7), *Glomus sp.* (3), *Acaulospora laevis* (1)
	Tannia (Tripura local)	240	*Glomus sp.* (9), *Glomus mosseae* (3)
	Tannia	160	*Glomus mosseae* (5), *Gigaspora calospora* (2), *Acaulospora laevis* (1)

	Elephant Foot Yam (Appakodat)	340	*Glomus mosseae* (8), *Glomus sp.* (5), *Gigaspora calospora* (4)

* Figures in the parenthesis indicates the spore numbers in 5 gm sample

Effect of Supplemental Heat on Mortality and Some Biochemical Profiles of Piglets during Cold Months in Tripura, a North Eastern State

The present investigation was undertaken to investigate the effect of supplemental heat on growth performance and blood biochemical profiles of indigenous Ghungroo piglets during cold months in Tripura agro- climatic situation. The experiment was conducted on 38 indigenous Ghungroo piglets from 1st day of birth upto 60 days of age at ICAR Research Complex, Tripura Centre, Lembucherra, West Tripura, India. Among 38 piglets, 19 piglets (10 litters of sow no. 2549 and 9 litters of sow no. 2531) along two lactating sows were kept in two separate pens and provided with supplemental heat by arranging three 100 watt bulbs. The artificial lighting arrangement maintained the temperature of the pen from 17.0^{0}C and 21.1^{0}C for first 30 days period and thereafter between 24.1^{0}C and 29.9^{0}C for next 30 days. These piglets were considered as the treatment group. Another 19 piglets (11 litters of sow no. 2541 and 8 litters of sow no. 2546) were kept in another two pens and the piglets were exposed with natural environmental conditions. The environmental minimum temperature were recorded between 7.2^{0}C and 15.0^{0}C during first 30 days and then between 18.5^{0}C and 25.5^{0}C for subsequent 30 days. These piglets were considered as the control group. Blood samples (2 ml) were collected in heparinised polypropylene tube by puncturing anterior vena cava on day 7, 15, 30, 45 and 60. Blood samples were centrifuged at 2500 x *g* for 10 min at 4^{0}C. Plasma was separated and stored at -20^{0}C until analysis of different parameters like glucose, protein, enzymes, hormones etc. In the present investigation, 17.3% (4/23) and 20.9% (5/24) piglet mortality in control and treatment groups, respectively was noted on the day of birth due to still birth, asphyxia, low birth weight, crushing etc. Thereafter, 31.6% (6/19) and 21.0% (4/19) mortality rates in control and supplemental heat treated piglets were recorded during the period from 2nd day to 7th day of age. The beneficial effect of supplemental heat on reducing (10.6%) mortality from 2nd day to 7th day of age was recorded in the present study. Piglet mortality was only 5.2% (1/19) between 8- 14 days of age in both the groups. Thereafter, no mortality was recorded during the rest period from 15 to 60 days of age. The supplemental heat might have some beneficial effects on treatment group piglets leading to the lower ($p<0.05$) plasma glutamate pyruvate transaminase (GPT) levels in the treatment group piglets as compared to the control piglets at 45 day and 60 day of age. An increase in release of thyroid stimulating hormone (TSH) from the pituitary gland and thereby increase in secretion of the thyroid hormones from the thyroid gland in animals exposed to cold are well documented. The present results showed no significant effect ($p>0.05$) of cold environmental temperature on plasma triiodothyronine (T3) and thyroxine (T4) concentrations in piglets. The environmental conditions were not probably stressful enough or the indigenous pig breed was adjusted with the cold environment in the present study. Further, plasma T3 concentration decreased ($p<0.05$) gradually with the advancement of age in both the control and treatment groups and it could be explained in the light of adjustments in metabolism and energy expenditure. The gradual decrease ($p<0.05$) in plasma luteinizing hormone (LH) concentration with the advancement of age in both control and treatment group piglets may be due to ovarian steroid feedback mechanism on gonadotropic secretion is likely to be functioning in neonatal piglets. No significant treatment effects ($p>0.05$) on plasma glucose, insulin, total protein, albumin and globulin, glutamate oxaloacetate transaminase (GOT), follicle stimulating hormone (FSH) concentrations were noted in the present study.