Concluded projects during 2020-21

#	Title & code of the project	Project period	Objectives	Output	Plan for Utilization of the Project Output:	Remarks
1	**[PPA 4715] Effect of plant growth promoting rhizosphere microorganisms on leaf nutrient content of primary tasar host plants in forest and block plantation.**	**September 2016 - September 2020**	• Composition of plant growth promoting microorganisms in rhizosphere of primary tasar host plants in both forest and block plantation. • Screening of isolated plant growth promoting microorganism species for leaf nutrient content in primary tasar host plants. • Relationship between plant growth promoting microorganisms and nutrient content of soil and leaf of tasar host plants. •	• Relationship between PGPR composition with Soil and leaf nutrient was studied using soil and leaf samples collected from natural habitat. • Leaf Nitrogen content is positively correlated to Pseudomonas load & diversity followed by load of Nitrogen fixing bacteria (NFB). • Leaf K content is positively associated with Pseudomonas load & NFB diversity; whereas, soil Sulphur content is positively correlated with PSB load and Pseudomonas diversity and soil K with Pseudomonas load. • Higher total bacterial load was observed in forest plantations with Asan as compared to block plantation with Arjun. • Total 258 PSB, 204 NFB and 74 anti-pathogenic plant growth promoting	• Findings suggests the significance of PGPR load in the tasar food plant rhizosphere to enhance the level of available soil nutrients and thereby leaf nutrients. • Besides PGPR bacterial load, functional efficiency of the isolates also found significant in enhancing nutrient availability in soil. • Selected isolates are being evaluated under On Station Trial at RSRS Dumka, Baripada and Jagdalpur to assess their effect over plant growth and nutrition under different agro-climatic conditions.	

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				bacteria isolates were Isolated from 116 rhizosphere soil samples collected from Jharkhand, Odisha & Chhattisgarh. • Top 57 PSB isolates were selected. In vitro multi-functional tests revealed that, most of the selected PSB isolates are having capacity to produce Indole-3-Acetic Acid (IAA) and Ammonia. • Potential isolates were selected *viz.,* PSB 7-2, PSB 16-2, PSB 64-7, PSB 98-1, PSB 109-1, PSB 110-2, NFB 5-2, NFB 8, NFB 18-2, NFB 51.2.		
2	**ARP - 4714 -** Identification of early sprouting and fast growing genotypes of *Quercus serrata* for raising block plantation in North – West India.	March,2016 - August, 2020	1. Identification of early sprouting and fast growing genotypes of *Q. serrata* in the existing population. 2. Multiplication of isolated early sprouting genotypes to raise block plantation for utilization in early spring crop (March – April).	i) Five plants were identified as early sprouters during four surveys conducted under the project. Out of total 5 identified plants, three were identified from Kumaon and two from Garhwal region. No rooting was observed in air layers tried on the plants. Twigs of selected genotypes were brought to RTRS Bhimtal and planted by appropriate methods. But even after repeated	• Mmultiplication of identified early sprouters through seedlings under Programme of work and identify more such plants and try for their multiplication.	

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				attempts and following different protocols, rooting was not observed. The PI also consulted the Horticulture Dept. G.B. Pant University, Pantnagar and Department of Plant breeding & Tree development, FRI, Dehradun. As suggested, treatment of 4000 ppm IBA with talcum powder & ethyl alcohol before sprouting was also tried but no positive result was found.		
3	**[CED-4723] Studies on utilization of solar energy in tasar post cocoon technology operations.**	October, 2016 - December 2020	• Economizing the energy consumption in tasar post cocoon technology operations i.e. cocoon stifling, cooking, reeling, re-reeling, twisting and wet processing (degumming, bleaching, dyeing and finishing). • Providing support to poor and marginal reelers and enhancing their profit margin. • Reducing dependence on electricity supply and consumption in rural areas silk clusters. • Following cleaner	• Development of cooking device for tasar cocoons operated by electricity from solar power plant. • For effective utilization of solar energy the minimum radiation required is 600 W/m2. • The cost of cooking is Rs. 55/- per 1000 cocoons which is lower by 15 to 30% vis-à-vis usage of firewood and LPG,	• The developed solar operated tasar cocoon cooking device will be utilized for softening of tasar cocoons with cooking efficiency.	

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			production technology processing in tasar post cocoon technology operations. • Drudgery reduction as the reeling machines etc. will be fitted with solar energy driven motors. • 6) Replacement of thigh reeling by introducing solar energy driven machines in reeling clusters of the country.			