

Importance of Agricultural Wastes

S. Sharma¹ and S. Thakur^{2*}

Introduction:

A large number of by-products or wastes of agricultural origin are at present used in an uneconomic manner or left partially or completely unutilized. They include paddy husk, straw, rice bran, non-edible oilseeds, tobacco waste, inferior fibre, nut-shells & peels, stones, rag, crown etc of fruits and vegetables. Appropriate utilization of such products will not only help in conserving valuable natural resources and reducing cost of production but may also develop products for export. The information about some important by-products are given below.

Rice Bran: Rice bran is the layer around the endosperm together with a portion of polishing removed during the process of rice milling. Nearly rice bran to the extent of 6-10 per cent of unpolished rice & containing 15-20 per cent of oil can be recovered. Suppose if 37 million tonnes of rice is produced, two to three million tonnes of rice bran should be available. Since rice bran can be economically recovered from large rice mills working on sheller system only, it may be feasible to get about one million tonnes of

this product. Rice bran is chiefly used as cattle feed. It has been reported that rice bran from which free fatty acids/oils have been removed is more palatable to cattle. The oil so extracted will help in augmenting the inadequate supplies of vegetable oils. After proper treatment, rice bran oil can be used as edible oil and in margarine & soap manufacture, resin industry and insecticidal formulations. Along with other cattle feeds, de-oiled rice bran can be used for manufacture of cattle.

Non-edible Minor oilseeds: Besides well known cultivated oilseed crops, India possesses nearly 90 different oilseed bearing trees grown all over the country. No precise information with regard to their number and production of seeds is at present available. It is estimated that the number of main oil-bearing trees exceeds 300 lakh producing nearly 10 lakh tonnes of seeds. Their importance can be judged from the fact that this production represents about one-seventh of the existing production of cultivated oilseeds in the country. Major part of the collected oilseeds is crushed in village ghanis and a limited quantity is crushed in mills.

S. Sharma¹ and S. Thakur^{2*}

¹ Department of Genetics and Plant Breeding, CSK HP Krishi Vishvavidyalaya, Palampur-176062, HP, India.

² MS Swaminathan School of Agriculture, Shoolini University, Kasauli Hills, Solan, 173229, HP, India

The oil is mainly used for manufacture of soaps, medicines, burning lamps etc. By proper treatment, the oil can be used in leather tanning & as hair oil. Full utilization of these non-edible oilseeds is beset with difficulties viz. cost & difficulty in their collection and oil industry in India is not yet geared to the processing of such oilseeds and in a number of cases, the oil has to be refined and bleached before its extraction can be organized on a large scale.

Tobacco wastes: Major portion of the tobacco waste (about 70 per cent) is utilized for agricultural purposes in the form of insecticides. About 4 per cent of tobacco waste is destroyed and the rest comprises stalks & stems. Since the nicotine content of tobacco waste ranges between one and three per cent, it can be profitably be utilized for the manufacture of nicotin sulphate. Full development of this industry would enable not only to meet the existing and likely internal requirements of nicotin sulphate & nicotinic acid, but also be able to spare enough for export for which there is good demand in other countries. The present processes of extraction of nicotin sulphate would however have to be made more efficient & economical to produce it cheaply. Tobacco seed can also be utilized for extracting oil and using tobacco seed cake as manure.

Bagasse is the fibrous material left after crushing of sugarcane. Bagasse is at present mainly used as fuel in the boilers of the sugar factories, in making paper. Paddy straw, bamboo & sabai grass can also be utilized in the manufacture of paper in view of the increasing demand for paper. Similarly, by products of fruits can be utilized for extraction of oil & pectin. Cow dung is used in the manufacture of gas for cooking purposes without affecting the value of residue as manure.

Conclusion: Besides the above wastes of agriculture, which can be usefully converted into industrial products, there are large number of other by products which can be put to many other uses or in the last resort, converted into compost. What is required is their proper exploitation through close cooperation and coordination of industries, technical guidance, adequate arrangement for collection, conservation and search for markets. The programmes should be properly supported by constant research. Where full information about availability of material is lacking there is need for conducting investigations.