wheats of a shorter duration. The potentialities of this method too, in regard to shortening the duration of rice under South Indian conditions, without diminution of yield, have been studied at Coimbatore for about three years. A fairly extensive series of experiments have been carried out in the field as well as in pot cultures and it was found that there was a distinct positive response in the yield of certain varieties of paddy, when subjected to vernalisation. The increase in yield was found to range from 14 to 38 per cent in the case of grain and from 7 to 34 per cent in straw.

The few examples that are given above would serve to show, that the method of pre-treatment is one that holds out a distinct promise of becoming one of the most helpful methods towards maximisation of crop production and as such deserves to be explored to the fullest extent that is possible by us.

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Pre - Sowing Treatment for Seeds of some Cultivated Plants

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Seeds of many cultivated plants do not germinate easily. Dormancy and impermeability of seed coat act as the main barriers in their germination. There are several methods of seed treatment for improving seed germination. But due to the complex nature of these treatments the agriculturist is unable to exploit them under our conditions, but is compelled to adopt a heavy seed rate to make up for the low seed germination. This entails a heavy loss of seed and cumulatively the waste of seed runs to several lakhs of rupees.

Trials at the Agricultural College, Bapatla with various methods of seed treatment, have shown that heat through water is the simplest agency for overcoming impermeability of seed, coats and secure increased germination. The response given by some cultivated plants, the method of treatment needed for each and the resultant advantages are briefly given below.

Wild Indigo (*Tephrosia purpurea*) *Vempali* — Telugu; *Kolingi* — Tamil.— This is a green manure crop grown extensively in South India and the annual consumption of seed is estimated at 5,000 tons. Pre-treatment by steeping in water at 80° C for five minutes induces over 60 per cent germination in a week's time, as against 15 to 30 per cent secured with the seeds normally in a month's time. The pre-sowing treatment is simple, economical and is far better than the existing method of pounding the seeds with sand.

A field contains only 40 per cent of good-sized plants and the rest are undersized and stunted, developed from seeds germinated long after sowing. Germination in one flush in this crop enables us to secure a uniform crop and the yield of green manure is also increased considerably. The seed rate can be reduced and the yield of green material can be doubled by simple pre-treatment of seed before sowing.

2. **Sunnhemp.** *(Crotolaria juncea) Janumu*—Telugu; —*Sanal*, —Tamil — One of the most extensively grown fodder cum green manure crops of South India is sunnhemp. Over 10,000 tons of seed are utilised annually. Normally 80 to 90 per cent of the seeds germinate and the seeds are generally soaked in water overnight before broadcasting. This enables the seeds to germinate quickly and utilise the moisture remaining after harvest of paddy in wetlands. By steeping the seeds in water at 70°C for five minutes the pace of germination is increased and the entire lots of seeds, excepting dead, decayed and immature ones, germinate within 24 hours. A uniform crop is ensured with 5 to 10 per cent increase in germination. Such an increase in germination amounts to a proportionate increase in the yield of green manure for paddy, and this is by no means inconsiderable.

3. **Leucaena glauca.** *Nagarikesari*, Telugu— This is a quick-growing shrub useful for fuel and green manure purposes. The hard, shining seeds when soaked in water at 80°C for five minutes give 80 per cent germination in a week's time as against about 25 per cent secured normally. Large-scale field sowings have demonstrated the efficacy of this treatment.

4. **Delonix elata** *Vadanarayan*—Tamil:— *Delonix regia* Gulmohr— These are avenue trees found all over the country. These seed profusely and the seeds are hard and metallic and do not easily germinate. Owing to this drawback, these are propagated mostly by cuttings. Steeping these seeds in water at 85 and 90°C respectiv ly induces 50 to 75 per cent germination in a fortnight. Seedlings can be propagated in thousands and supplied as a part of the tree-planting drive initiated recently. The existing method of propagation by cuttings can be dispensed with, as it is uneconomic.

5. **Wood apple.** *(Feronia elephantum) Velaga* —Telugu: *Vilam.*—Tamil— A perennial, long-lived sacred fruit-tree of India is wood apple. The fruit is highly nutritious, and also medicinal. The seeds can be extracted by washing the pulp in water on a sieve ordinarily used in houses and mixed with wood ash and kept free from insect and fungus attack The seeds are hard and do not germinate easily. Soaking in water at 60 C for five minutes ensures cent per cent germination in a month s time. Large-scale nurseries can be raised utilising this method. One plant in each backyard will last for decades and will ensure an unfailing supply of fruits regularly every year even with hardly any care or attention.

6. **Phyllanthus emblica** *Indian Gooseberry*—Telugu; *Usiri*—*Nelli*— Indian gooseberry is reputed to be the richest source of vitamin C and is used for a variety of purposes. The seeds are easily extracted by sun-drying the fruits. On six weeks storage after extraction, treatment with water at 80°C for five minutes ensures 80 per cent germination in about 10 days against a meagre percentage obtained normally.

The seeds from one plant alone will be sufficient for planting seedlings in the backyards of all houses in a city like Madras.

7. **Prosopis juliflora, Mesquite.** *Seema jiluka*—Telugu— This is an introduced plant eminently suitable for our conditions Except the tender leaves, goats do not relish this plant. It is a thorny, quick growing tree ideal for hedges. The pods are sweet, leathery and form a good feed for cattle The extraction of seeds from pods is very laborious and difficult. Treatment of the pods with sulphuric acid diluted in water in the ratio of 1:4 for 24 to 48 hours in an earthern tub, softens the pods and facilitates extraction of seeds on pounding with sand after thorough washing and sun drying. Seeds scarified with sand and soaked in water at 70°C for five minutes give about 75 per cent germination in three days. The acid treatment is not injurious and is economical.