The wet land ryot sometimes perefers to grow a paddy crop and a Chitrai cholam crop with far less trouble and far less working expenses than required for sugarcane crop. The prices of jaggery are fluctuating. The risk of loss in case of the fall in price of jaggery is another point for consideration for the ryot who by habit is shy of speculation. The fluctuations in prices of jaggery are owing to local demand in relation to its supply. Higher prices in one year are followed by larger production in the next, the inveitable result of which is a fall in prices. But the sugar market only controls the maximum limit to which the price of jaggery can rise or in other words, if price of jaggery rises and approaches that of sugar, the major portion of its previous demand will divert to sugar as the better of the two and price of jaggery then is bound to fall for want of demand. The above remarks refer to pre-war period. Now owing to the war, sugar from Germany and Austria has stopped, consequently the price of sugar has risen by 33% already. Owing to this, I expect a portion of demand for sugar will divert to jaggery whose price will consequently rise, and I am confident that the area under cane in the next year may therefore become larger.

M. MANGESA RAO.

(To be continued.)

Green Manures for paddy on the West Coast (Daincha and Cow gram).

In Calendars published by this Department a good deal has been written about green manures. The importance of the subject amply justifies its repetition in this Journal. It must be admitted that the value of green manure for crops on wet and garden lands was well known to the ryots long before the advent of the Agricultural Department. This is evident from the general practice of applying green leaves both for such garden crops as sugarcanes, betel vines, cocoanuts, arecanuts, ginger etc., and for paddy on wet land. It is also commonly known to ryots that a cereal crop after a pulse grows much better than a cereal

following another cereal. Why it is so they are unable to explain. But the idea of raising a leguminous crop and ploughing the whole of it into the land solely for enriching the soil is quite a new one. Apart from the question of enriching the soil, the organic stuff thus ploughed into the soil improves the texture and drainage of that soil. This opening out of the soil results in making more plant food available for the crop. The net result is a better crop. This fact has been well realised not only on the Experimental farms of the Agricultural Department, but also by all ryots who have given this system a fair trial. The fact that sufficient green manure seeds for 20,000 acres were sold last year by the Department must eradicate from the minds of the most conservative ryot any doubt still lingering regarding the efficacy of the system.

It is unnecessary to discuss here the question whether it is more advantageous to bring in green leaves from the jungle and apply to the land or to raise a green manure crop and plough it into the land for the simple reason that there is always a scarcity of green leaf; and even when it is available the price is in most cases exorbitant, particularly so in the coast taluks. It is very much to be regretted that the system of growing green manure crop has not yet become a common practice in the West Coast Districts.

We shall now consider how green manure crops can be raised and how far the trials already made in the West Coast have been successful. In South Canara, as in Malabar, there are three kinds of wet land, Bettu (high lying land), Majal (medium level), Bailu (low lying). In Bettu one crop of paddy crop is raised. By the time the paddy crop is off the field, the land is too dry to raise a pulse crop. But in rare cases, horse-gram is sown some 10 or 15 days before the harvest of paddy. This crop generally grows moderately well and gives a fair outturn. In Majal, one crop of paddy is grown and this

is followed by a pulse crop, whereas in Bailu, two crops of paddy (and sometimes even three crops of paddy) are invariably raised as well as a pulse crop. It is in the last mentioned class of land that Daincha has been tried as a mixed crop with pulse. The second crop paddy is harvested in January; black-gram or green-gram is sown mixed with Daincha and harvested in April. Daincha is left in the field till June when it is cut, the field puddled, and paddy then transplanted as usual. The moisture already contained in the soil is enough to germinate the gram and Daincha seed. Hot weather rains in April considerably help the growth of these crops. By the time the crop is ready to be cut, the plants are about 8 feet high. The green stuff obtained for ploughing into the land may be estimated to be worth about Rs. 15 per acre, whereas, the actual expenditure for raising the crop includes only the cost of the seed which is about Rs. 1—8—0 per acre. The usual seed rate for the pulse crop commonly grown is about 15 local seers roughly equal to 10 Madras Measures. It is recommended to sow 10 seers of pulse and 3 of Daincha as a mixed crop. Trials were made in three villages in the year 1913 and in 10 villages of different Taluks in 1914 and over 25 in 1915. The paddy grown after the ploughing in of the green manure gave remarkably good yields. The ryots who grew green manure appreciated the value of the system. Some of them have collected their own seeds for next year's use, and applications are being received constantly for supplies of seed. Now that the system has been found to be advantageous it is the duty of all who have tried it and are satisfied with its results to give wide publicity to the system.

In Malabar the condions are different, the paddy cultivators generally speaking are not quite so keen as those of South Canara. The excellent practice of raising a pulse crop after paddy is far from general. The bulk of the paddy lands in the North of the district are single crop lands and they are left without any crop from November to June. After the harvest of paddy

the land should be ploughed 4 or 5 times and kept ready in the hot weather. This practice of ploughing the land is not, however, recommended where the land is clayey and has a tendency to crack. Cow gram should be sown immediately after the showers in April—May, and even before the rains if there is sufficient moisture in the soil for the seed to germinate. The seed rate per acre is about 5 to 6 Madras Measures; bazaar seed being quite good enough for the purpose. This will have about 30 to 40 days for the gram to grow. As it is a quick-growing crop, the field will be well covered before it has to be puddled for the paddy crop. The gram crop is ploughed in and paddy transplanted in June. As a result, the paddy gives a better yield. For the last eight years this has been done on the Taliparamba Agricultural Station with great success and the paddy land has already improved considerably. Trial crops of cow gram green manure have been raised in different parts of North Malabar and South Malabar for the last two years. The trials were in the majority of cases successful and the paddy was found to give higher yields. The chief objection that ryots have in growing green manure crops is that the cow-gram is eaten away by cattle, and they consider it expensive to fence the crop. But if all the cultivators in a plot of land could arrange amongst themselves to cultivate the crop, the difficulty vanishes, for then, there will be no necessity for fencing the area. The paddy crops now raised are not fenced and good care is taken that animals do not damage the paddy. The same might very well be done with other crops. It is therefore earnestly urged by the department that ryots should take up the practice and reap the benefits which will follow if the instructions given are carried out.

It is also recommended that the system of raising a pulse crop after paddy as is done in South Canara should also be more widely adopted in Malabar.

M. GOVINDA KIDAVU.