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Farming will never be a success unless the farmer  
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THE JOURNAL  
OF  
The Madras Agricultural Students'  
Union.

Vol. XV ]

MARCH 1927.

[ No. 3.

DURATION OF SOME PADDY VARIETIES.

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By 'duration,' is meant the period of time taken by a variety to ripen off, calculated from the date of sowing. While it is a fixed varietal character for a given set of conditions in a particular locality, it may vary considerably when these are altered. Any comparison of paddy varieties or strains as regards this character, therefore, involves their being sown on the same day and grown under identical conditions.

In 1925 the writer had an opportunity on the Samalkota experimental station, to grow, side by side, in small strips, and determine the duration of a large number of varieties most of which were collected by him and his colleagues on the station during their tours of enquiry or while on leave. The seed of all the varieties was sown in the seed bed on the 18th June and the seedlings transplanted in lines in small strips in a very uniform field. The season was normal and all the varieties had a fair chance to grow. Table I gives the duration, in days, of 145 varieties or types found in them.



TABLE I.

(1) *Very early* (130 days or less):—Khorla, 104; Molokumbhi and Araloddilu, 109 each; Swaranalu, 114; Bobbili Budama and Lamba, 116 each; Lodhralu, 117; Aravadamsamba, 119; Satthikalu, 121; Nagisalu and Nallaaralu (Dalwa), 122 each; Hemasannalu 123; Kokkaradhanyam, 125; Burmah I and Kondakurangi, 127 each; Punasa Atragada, 128; Basangi-27, Mechoro and Bota mokodo, 130 each.

*Early*:—(131 to 145 days):—Lodhyari, Basangi-33 and Basangi-75, 131 each; Garikasannavari I and Borigi, 132 each; Basangi-55, Basangi-61 and Yerrabakkalu, 133 each; Kevito chompu, 136; Bodamoli and Konna, 137 each; Cheviti chompu, 138; Peddakanneralu, Basangi-23, 139 each; Basangi-24, 140; Muthubayyahunda, 141; Alwar-Sannalu and Basangi 29, 142 each; Basangi-46, Kalahandisannalu and Sunkisannalu, 143 each; Basangi-90, Basangi-26, Drohanapugada, Chinnamundabolalo and Mundlavari, 144 each; Pientia, Vavilapadusannalu and Basangi-21, 145 each.

*Medium* (146 to 160 days):—Dhanyarasulu, 146; Radhaprayaga and Boddhumani, 147 each; Sunnapuvulu and Swarnamuthialu, 148 each; Tobarasulu and Bobbiliganti, 149 each; Palagummasari, Tellaradhaprayaga, Chulakanamahipali, Punasakonamani 2: 151 each; Kosakaddilu, Gudarisanannalu, Kakerikalu 1 and Punasakonamani 1, 152 each; Palagummasari, and Vankalu, 153 each; Punasa Akkallu, Bosoponko, Nallakonamani and Gudakutta-154 each; Sannabayyahunda, Punasa Akkallu 2, Punasa Akkallu 3 and Punasakkallu 9-155 each; Vasana vadlu and Burma 2-156 each; Dasaradhilu, Bangaruthigalu. Bayyahunda, Punasa Akkallu 23, Ratnachudi 5, and Kanaksompu 4-157 days each; Punasa Akkallu 5, and Sanna Akkallu-158 each; Burma 1, Ratnachudi 7, Turpu Sanna Akkallu 3-159 each; Palagummasari 4, G. E. B 24, Bangaruthigalu 2 and Kanakarattalu-160 each.

*Late* (160 to 175 days):—G. E. B. 1303, Sannabayyahunda (Ganjam) and Kanakasompu 14-161 each; Navakotisannalu 4 and 6, Co. 1, Krishnakatukalu 3, Konamani 14, Palabaluguthulu, Chippuru-bayya hunda, Naguthali Sannalu, Koyyisompu, Balarambhogam, Vajjanam, Gummasari, Maharajabhogam, Raja-

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ratnal, Gunupuram Sannalu, Bangaruthigalu 3, Kosisompu, Kanakasompu 9 and Ratnachudi (Ganjam)-162 each; Mahipali and Ratnachudi 13-163 each; Prayaga, Bikkirisannalu, Ratnachudi 9, and Burma 3-164 days; Krishnakatakalu 1, Konamani 15 and 16, and Ratnachudi 10-165 each; Paniala and Navakoti Sannalu 5,-166 each; Harisanker-167; Navakoti Sannalu 3-168; Baital Fakir and Ratnachudi 15 and 11-169 each; Kanakasompu 7 and Pedda Akkullu-170 each; Burma 4-174.

*Very late* (over 175 days):—Korangusamba, Kothamallisamba, and Vellai Sirumani-189 each; Kattasambalai-190 days; Masipashanam, Red Sirumani, Ramagarudamsamba, Pishanam-192 each; Molakolakulu-193; Muthusamba, and Sannavari-194 each.

From the table it will be seen that Khorla, a variety from the Jaipur Agency, had the shortest duration (104 days) while Sannavari from Nellore and Muthusamba from Tanjore had the longest (194 days). For convenience, varieties ripening in 130 days or less are termed 'very early', those taking 131 to 145 days 'early,' those taking 146-160 days medium, those taking 161-175 days 'late' and those taking over 175 days 'very late.'

Duration is one of the chief characters which govern the choice of varieties by the cultivator. In the main or first crop (Sarava) season, very early or early varieties are usually preferred in localities where the crop is dependent entirely on rain or small rainfed tanks or streams, which supply water early in the season but fail to do so latterly. They are also sometimes chosen for being grown in very rich soils such as these receiving the drainage from an adjacent village where a late variety is liable to grow too rank and lodge before earing. In some cases, a very early variety is grown with a view to follow it up by a late one, soon after the harvest of the former. An early variety is also preferred as a first crop in double cropped lands, since the second or 'dalwa' crop usually comes up better after such, on account of the soil weathering for a longer time in the interval\*. Sometimes, the

\*The second crop is usually planted up in the beginning of February, whatever the date of harvest of the previous first crop may be, as when planted earlier it does not establish well.



raising of a pulse or green manure crop (green or black gram or sunnhemp) in the interval is also rendered possible. The pulse crop, moreover, usually comes up better after an early paddy crop than after a late one. An early variety is also usually preferred on lands where sugarcane or gingelly are intended to be grown in the 'paira' season (January onwards), the preparation of the land being thereby facilitated. In the Dalwa season early varieties are, of course, preferred on account of the water supply being limited to a short period.

The chief disadvantage of very early or early varieties in the first crop season is that their harvest comes off in the rainy season. Another difficulty is that when the rains contrary to expectations, commence late, such varieties have their short period of growth further shortened and hence give poor yields. They are also unsuited in general to poor soils, as they have to make rapid growth in a comparatively short period. The ripening of early varieties, ahead of the bulk of the area, also renders them liable to heavy damage by birds.

Late varieties are usually selected where the watersupply is assured till the crop ripens off, and the soil is not too rich. They are preferred for poor lands and in places where the planting is likely to be delayed on account of the monsoon setting late and in places where a punasa crop such as gingelly, ragi or cumbu or a very early variety of paddy is grown previous to the 'pedda' or main crop. Late or very late varieties are sometimes selected on account of the land being illdrained, and not permitting of an early harvest on account of its being too wet at the time. The very late varieties, which were all introductions from Nellore or the southern districts, where the main crop of paddy is grown mostly during the period of the N. E. monsoon have been found to fare on better than the local late ones, in what has been called the 'intermediate' season, i.e., when planted immediately after an early first crop.

The late varieties, however, generally suffer more from the stemborer which is one of the principal insect pests in the northern Circars. On rich soils they often grow too rank and give only a moderate yield of grain and a large quantity of straw, then unprofitably exhausting the soil. Very late varieties, which stand over after the bulk of the crop is harvested, are often badly damaged by rats and birds.



Varieties of medium duration have, in theory, a combination of the advantages of the early as well as the late varieties without the disadvantages and are therefore now largely grown in all good soils.

It may not be out of place here to briefly refer to the various conditions which shorten or lengthen the duration of paddy varieties and the extent to which each of them affects that period.

In the sarava season, the earlier or later the sowing, the longer or shorter respectively does the duration grow provided other conditions remain the same. But the extent to which the duration becomes longer or shorter varies with the duration itself. In the early varieties, the earliness or lateness in sowing is largely seen in the dates of harvest also, so that the difference in the duration is generally small as shown in table III. In the late varieties however, the dates of harvest are very little affected by the earliness in the time of sowing and hence the difference in duration is large as shown below :—

TABLE II.

Variety.	F. No.	Date of sowing.	Date of planting	Date of Harvest	Duration (days)
1. Basangi ...	10	22-6-21	25-7-21	5-11-21	136
(Early) ...	11	11-6-22	26-7-22	27-10-22	138
2. Konamani.	16	24-5-12	8-7-12	21-11-12	181
(Long) ...	16	12-6-12	8-7-12	21-11-12	163

Earliness or lateness in planting, (the date of sowing being the same or almost the same) also affects duration. In this case, however, the duration of the early varieties is considerably affected while that of the late varieties is not appreciably affected as shown below :—



TABLE III.

Variety.	F. No.	Date of sowing.	Date of planting.	Date of harvest.	Duration (days)
1. Basangi ...	11	11-6-22	26-7-22	27-10-22	138
(Early) ...	11	10-6-23	1-8-23	2-11-23	145
2. Konamani.	16	31-5-12	26-6-12	21-11-12	174
(Long) ...	16	31-5-12	16-7-12	21-11-12	174

In the medium varieties, earliness or lateness in both sowing and planting affects the duration to a moderate extent.

In general, the nearer the date of sowing or planting to the normal date of harvest, the greater is the effect on the duration.

The duration of varieties usually grown in the sarava season is somewhat cut short\* when they are grown in the normal dalwa season (i.e., when sown in January and planted out in February). When grown earlier however the duration is prolonged as shown below :—

TABLE IV.

Variety.	Date of sowing.	Date of harvest.	Duration (days)	Remarks.
1. Garikasan-navari ...	3- 1-23	3-5-23	120	Duration in the Sarava season 130 days.
	30-11-22	9-4-23	130	
	1-11-22	21-3-23	140	
2. Rasangi ...	3- 1-23	9-5-23	126	Do. 142 days.
	30-11-23	17-4-23	138	
	1-11-23	8-4-23	158	

\* Some varieties when sown after the normal flowering season have a very long growing period, flowering only at the normal flowering term in the following year. Banku paddy, which, when planted in the normal season ripened off in about 4½ months once took over 10 months to ripen on the Saidapet college farm when planted after the usual flowering season.



Some varieties take different periods to ripen off in different localities, owing probably to a change in the environment, especially the climatic conditions. Ratnachudi which takes about  $5\frac{1}{2}$  to 6 months to ripen in the northern circars ripened in about 4 to  $4\frac{1}{2}$  months on the Palur agricultural station\* G. E. B. 24 is taking a longer term in the circars than at Coimbatore or in the southern districts. The duration of some varieties however does not appear to be appreciably affected by the change, e. g. Garikasannavari.

The fertility of the soil is another factor which affects the duration to some extent. In a rich soil there grows vigorously, flowers and ripens slightly earlier than that in a poor soil, the difference noted being up to 4 days in some cases. When the soil is too rich however, or when an over dose of rich nitrogenous manure like ammonium sulphate is applied, the crop runs to vegetative growth and the flowering and ripening are somewhat delayed. Some varieties again appear to flower earlier and ripen off quicker on a poorer soil e. g., G. E. B. 24.

Light also influences duration. A crop affected by shade, such as of a tree, while growing taller flowers and ripens later than one the open.

### THE COTTON PLANT—CERTAIN ASPECTS OF.†

P. NARAYANA NAYAR, B. Sc. Ag.

*Introduction.* As we all know, cotton fabrics form the bulk of the clothing of the people of this country. Rice many take the place of wheat as an article of food, cholam and other minor millets might replace rice but so far nothing cheaper has been found suitable to replace cotton as an article of clothing. Being an economical crop, it is attracting the attention of both the breeder and the cultivator. The breeder's name is made if he succeeds in evolving a strain giving 5 bolls more per plant or having its lint longer by 5 mms. than the local one. It is rare to find a strain with high ginning percentage and long staple combined in high produce of a single plant. It should be the aim of the

\* 1909-12, (Vide annual reports)

† Paper read before the Jubilee Conference July 1926.

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