

## A NEW HORSEGRAM VARIETY PAIYUR 1 FOR SEMI-ARID TRACTS OF TAMIL NADU

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### ABSTRACT

Paiyur-1, a new horsegram variety with yield potential of 723 kg of grain and 1067 kg of husk was released for cultivation in the marginal and submarginal drylands. It has tolerance to yellow mosaic and root rot.

**Keywords :** Horsegram, Grain yield.

A high yielding horsegram variety for the marginal and sub-marginal drylands of the state is a long felt need. With the object of enhancing productivity of the crop in these areas, breeding work was undertaken at the Regional Research Station, Paiyur and the results are presented.

### MATERIALS AND METHODS

Two hundred and four single plants collected from different locations were evaluated in progeny rows during 1979. The promising accessions were tested for their yield potential under Preliminary Yield Trial during 1980 and in Advanced Yield Trials for three years from 1981 to 1983. Based on the performance, the culture DPI 1236 was selected and tested in other research stations of TNAU during 1984-86 under Multilocation Trials and simultaneously evaluated for its reaction to pests and diseases. Adaptive Research Trials were conducted in 43 locations in 11 districts of the State during 1983.

### RESULTS AND DISCUSSION

Culture DPI 1236, a pure line

selection from Mettur local, registered the highest mean yield of 723 kg of grain per ha as against 558 kg of the standard variety Co 1 with an increase of 30 per cent. It outyielded the local cultivar 'Kurungkollu' by 42 per cent. The husk (*pottu*) is of much value as cattle feed, the increased husk yield obtained by the culture being 13 per cent over Co 1 and 5 per cent over local.

In the multilocation trials conducted in different research stations, this culture registered a mean grain yield of 651 kg per ha as against 596 kg of Co 1, the increase in yield being 9 per cent.

In the Adaptive Research Trials conducted in 43 locations over two years covering 11 districts, the culture registered a mean yield of 551 kg of grain per ha as compared to 526 kg of Co 1 and 448 kg of local type. The yield increase was 5 and 23 per cent respectively over Co 1 and local. The mean husk yield was 989 kg per ha which was 7 per cent higher than Co. 1.

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Table 1. Mean performance of the culture DPI 1236 in Station Trial, Multilocation Trial and Adaptive Research Trials.

Experiments	No. of trials	Yield (kg/ha)		
		DPI 1236	Co 1	Local
R. R. S., Paiyur	5	723	558	508
Multilocation Trials	14	651	596	—
Adaptive Research Trials	43	551	526	448
Mean		642	560	478
% on Co 1		115	100	85
% on Local		134	117	100

The results of various trials conducted in the research stations as well as in farmers' holdings proved conclusively the superiority of the culture DPI 1236 in grain and husk yields over Co 1 and local (Table 1). On the whole, the culture recorded 642 kg of grain and 1028 kg of husk per hectare. It has excelled Co 1 and local cultivar by 15 and 34 per cent respectively in grain yield and by 10 and 35 per cent in husk yield.

The morphological and quantitative characters of the culture are presented in Table 2. This culture is a semi compact type growing to a height of 35 to 40 cm putting fourth tendrils at later stages of crop growth. It matures in 105-110 days. The quality and colour of the grains are as good as that of Co 1 and local cultivar "Kurungkollu" and are quite acceptable to the consumers. The presence of purple colouration on the rachis of the terminal leaflet of the trifoliate leaf helps as marker character to distinguish the culture from other cultivars. Being a medium duration culture, it fits well to the existing dry

Table 2. Morphological and quantitative characters of DPI 1236

Character	Description
Habit	Semi compact
Plant height (cm)	35-40
Duration (Days)	105-110
Days to 50% flowering	45-50
No. of branches/plant	4-5
No of seeds/pod	5-6
100 seed weight (g)	3.35
Pod length (cm)	5-6
Grain colour	Grey
Distinguishing morphological features	Pink coloured spot on the rachis of the terminal leaflet of trifoliate leaf.
Minimum sieve size recommended	9/64 mm round perforated

land crop rotations where horsegram is a component. This culture also exhibits high level of tolerance to important diseases such as yellow mosaic and root rot under field conditions.

Based on the above desirable features, the culture DPI 1236 was released as Paiyur 1 by Tamil Nadu Agri. University during January, 1988 for large scale cultivation in the semi-arid regions of the State