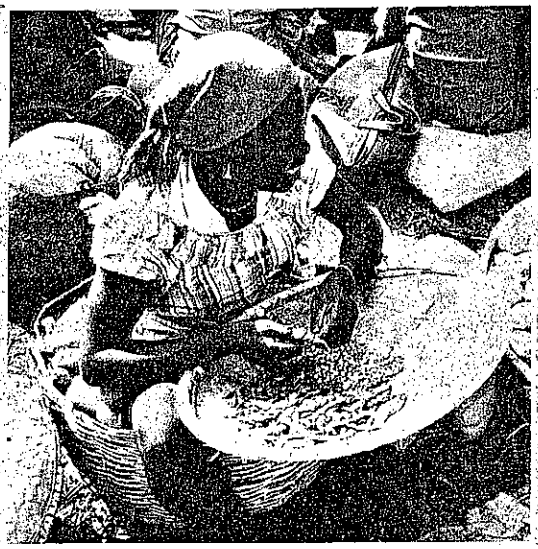

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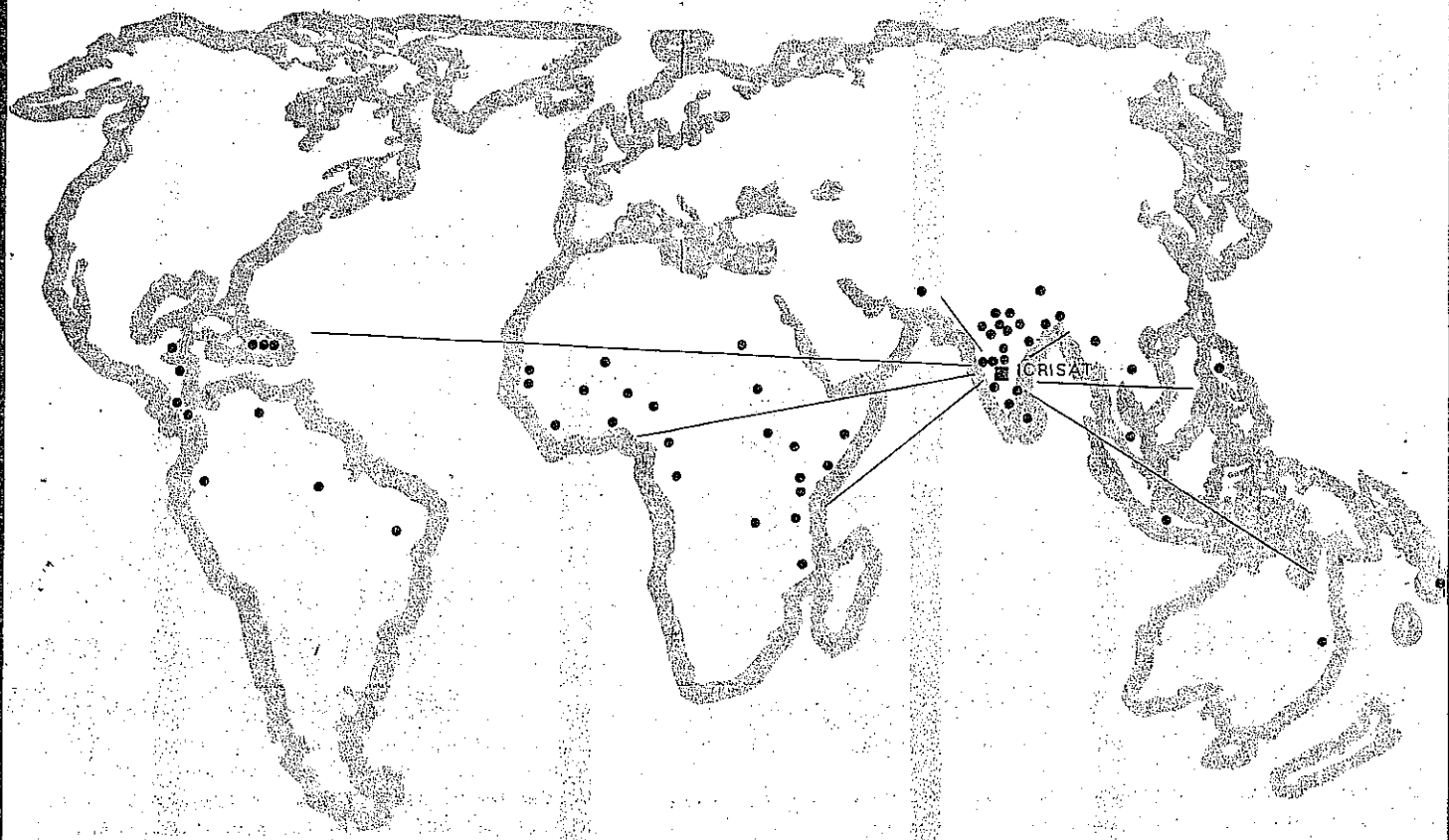

If any scientist has such entries in his collection, we would be very pleased to obtain a small seed sample. Please send your samples to the Genetic Resources Unit, ICRISAT.

Reference

Pathak. 1970. Red gram. Pages 15-53 in Pulse Crops of India. New Delhi: ICAR.

- L.J.G. van der Maesen and D.V.S.S.R. Sastry (ICRISAT)

A Fused Pod Variant in Pigeonpea

A variant plant possessing change in pod morphology was observed in 1982 at our station in segregating material of pigeonpea for an individual plant selected from entry number 76007 of the ICRISAT medium-maturity advance population trial grown at this station in 1980. This plant had several pods fused together from the base lengthwise in groups of two or three which were borne on one peduncle. In addition there were deformed, curved, and normal pods on the same plant (Fig.1). Though the variation for the number of seeds per pod was high for fused pods (1 to 7) as compared to that of normal pods (4 to 5), the fused pods contained on an average fewer seeds per pod. No appreciable differences in the 100-seed weight was noticed among the three kinds of pods. A critical examination of flower buds revealed that 2 to 3 flowers borne on a single peduncle were fused at the base and these developed into the abnormal pods. The fused pods yielded no more seeds per pod than did the normal pods.

This plant had 11 erect growing branches, was 112 cm tall, gave 509 g of seed, and matured in 163 days. Although there was no apparent beneficial effect of this fused pod condition on grain yield, the inheritance of this trait will be studied.

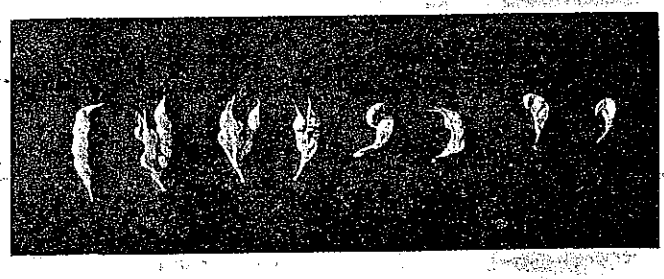

Figure 1. Fused pod variants: normal pod (left); three fused pods (left-center); four deformed pods (right).

Table 1. Yield components of various pod types on a variant plant grown at Sardar Krishinagar, Gujarat, India in 1982.

Pod type	Number of pods	Pod length (cm)	Seeds per pod	100-seed weight (g)
Fused	15	3.5 (2.1-4.8)	3.5 (1-7)	12.45
Deformed	3	2.7 (2.2-3.6)	2.3 (2-3)	12.03
Normal	91	5.0 (3.9-5.9)	4.5 (4-5)	12.77

- R.M. Shah, A.R. Pathak, P.P. Zaveri, J.A. Patel, A.N. Sharma, and R.S. Patel (Pulses Research Project, Gujarat Agricultural University, Sardar Krishinagar, Gujarat 385 506, India)

An Open Carpellary Mutant in Pigeonpea

Botanically a pigeonpea pod is a single chambered fruit developing from a single pistil, in which the carpel (modified leaf) folds along the midrib and the two margins meet and fuse together forming an ovary. Along the junction of the two margins of the carpel (vertical suture), on the inner wall of the ovary (placenta), 3-9 ovules are formed which in turn develop into seed.

During the 1982-83 season a mutant was found in ICPL 124 (Fig. 2) in which the ovary carpel developed normally but failed to fuse together and therefore the vertical suture was absent. Most of the pods on this plant dropped when they were 1 cm long but a few remained until they were about 3 cm long. None formed seed although aceto-carmine staining indicated 90-95% pollen viability. Hand-pollination, using the pollen of the same plant (sibbing) and other cultivars, failed to prevent pod abortion. However, three successful crosses were made onto normal plants using pollen from the mutant plant. These will be used to study the inheritance of this trait. Preliminary observations indicated that the open carpel

Figure 2. A mutant form of pigeonpea ICPL 124.

trait is conditioned by a single recessive gene. Detailed genetic studies are in progress.

- K.B. Saxena, D. Sharma, and D.G. Faris (ICRISAT)

A Nonflowering Uniculm Mutant of Pigeonpea

Pigeonpea is a quantitative short-day plant. Like other short-day species, early-flowering pigeonpea lines exhibit less sensitivity to photoperiod than the late-flowering genotypes, and it appears that days to flower and photoperiod sensitivity are closely linked.

At Gwalior (26 °N), late-maturing lines, such as T 7, NP(WR) 15, T 17, and Gwalior 3, when planted in the first week of July (i.e., shortly after the longest day), usually flower in October. Therefore it can be safely inferred that at Gwalior the short days of November or December can cause floral induction in these highly photoperiod- sensitive lines.

During the 1982-83 season at our Gwalior collaborative station we identified a mutant (Fig. 3) in the cultivar Bahar, which continued to grow vegetatively throughout the cropping season extending from July 1982 through June 1983 and, presumably due to strong apical dominance, produced no primary or secondary branches. This plant had normal trifoliate dark green leaves but, unlike other genotypes, continued to grow in height and, at the end of the season, was over 3 m high. Probably it would have grown much taller had it remained in the field longer. Efforts to propagate this plant vegetatively at Gwalior failed because of high temperature and low humidity.

Lack of floral induction in this mutant through most of a year indicated that either this mutant had a very long juvenile phase or required a shorter photoperiod than that of Gwalior for floral initiation. Another

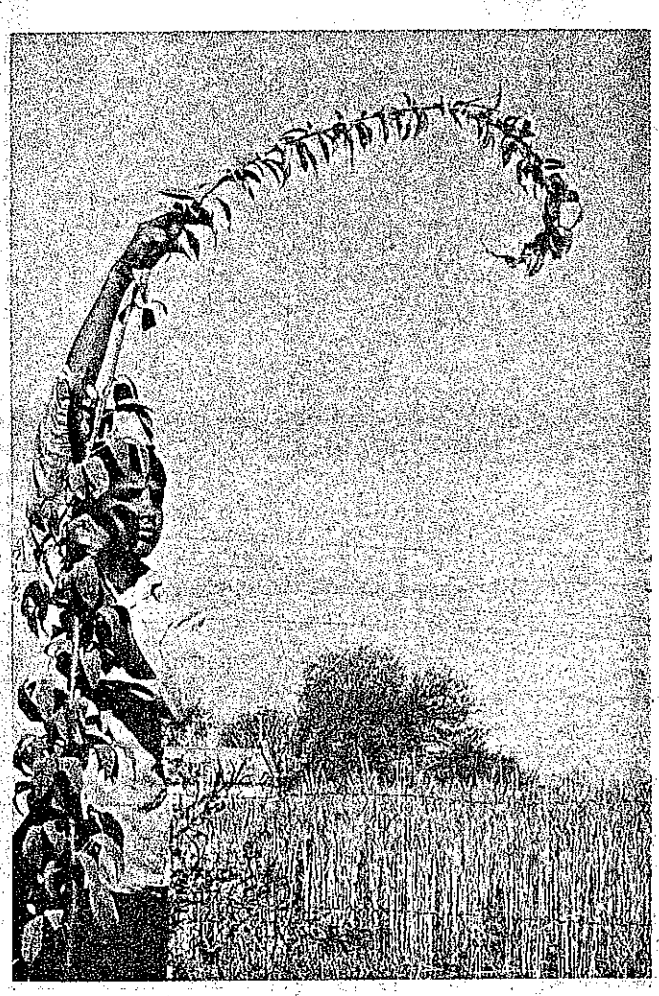

Figure 3. Nonflowering and nonbranching mutant.