The Agronomy of Multiple Harvest Pigeonpea

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In tropical environments where winters are mild (e.g. minimum temperatures above 10°C), short-duration pigeonpea (about 120 days to first flush maturity) sown in the rainy season has the capacity to produce additional flushes of pods. In peninsular India, we have taken three harvests in about 220–250 days from a June sowing. The total yield from the three harvests was 5.2 t/ha in 1982–83 and 4.1 t/ha in 1984–85. Insect control was essential to protect yield of individual harvests and to secure multiple harvests.

In agronomic studies, sowing around the longest day (summer solstice) and a population density of about 25–30 plants/m^2 gave the best result. Delayed sowing not only lowered the yield of individual harvests but also increased the incidence of moisture stress on lighter soils.

Yield in the second and third harvests varied with genotype, although yield from the first harvest was similar (Table 1). ICPL 87 was found to be superior for multiple harvesting, probably due to its ability to retain green leaf area at the first flush maturity.

TABLE 1. Seed yield (t/ha) from three harvests of three early maturing pigeonpea genotypes at ICRISAT Centre, 1982–83.

	ICPL 4	ICPL 81	ICPL 87	SE
First harvest	2.15	2.51	2.21	± 0.053
Second harvest	0.67	1.13	2.04	± 0.050
Third harvest	0.23	0.24	0.97	± 0.025
Total	3.05	3.88	5.22	—

The technique employed at first harvest influences subsequent performance. ICPL 87 gave a higher second harvest yield following hand-picking compared to ratooning the stems at two-thirds height. However, in environments closer to the equator, where photoperiods are not short enough to induce a second flush of flowers rapidly, plants harvested by ratooning were found to have more productive second and third flushes (Tayo 1985). In our studies, harvesting the first flush and the second flush together did not hamper formation of the second flush but reduced cost.

With appropriate agronomy, ICPL 87 in a multiple harvest system was found to be more productive on a per day and per ha basis than traditional, longer duration cultivars. This system is suitable for mechanised, higher input agriculture as well as for low-income farmers with the capacity for limited monetary inputs, such as for insecticide. Further, the system can be productive without irrigation, even though second and third cycle yields can be enhanced by irrigation.

Tayo, T.A. 1985. J. Agri. Sci., Camb., 104, 589–593.

Mungbean in Cropping Systems in Thailand

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MUNGBEAN is one of the most important legume crops in Thailand where approximately 500 000 ha are planted. More than 60% of the production is exported, making Thailand number one exporter in the world. About 80% is planted in the late wet season (Aug–Sept) after harvesting the corn crop, and nearly 20% in the dry season (Dec–Jan) after harvesting rice. Only a few farmers plant in the early wet season (April–May), especially before cotton, and there is very little monocropping of mungbean.

The UT-1 mungbean variety (known as M7 A), which is the only one recommended, was released in 1976, and has achieved about 50% adoption, while the remaining area is occupied by local varieties. The local white pod variety is quite uniform but the local black pod varieties are variable.

Not all high yielding varieties named by AVRDC or other countries are high yielding in Thailand, but many gave higher yield than UT-1. As a result, in 1986 the Thailand Outreach Program at Kasetsart University released Kampaengsaen 1 and 2 as new varieties for Thai farmers. These two varieties are VC 1973 A and VC 2778 A, introduced from AVRDC. The Field Crops Research Institute will release 2 or 3 varieties in 1987. One is an early maturity type and the others have a high yield potential, having outyielded VC 1973 A and VC 2778 A. The Chainat Field Crops Research Centre has sole responsibility for mungbean research work in the Department of Agriculture. There is also wide cooperation with other organisations i.e. AVRDC, ACIAR, IAEA and IRRI. The Farming Systems Research Institute is directly responsible for cropping systems in Thailand. Most cropping systems include mungbean as one component — as an intercrop, a relay crop, or a sequence crop.