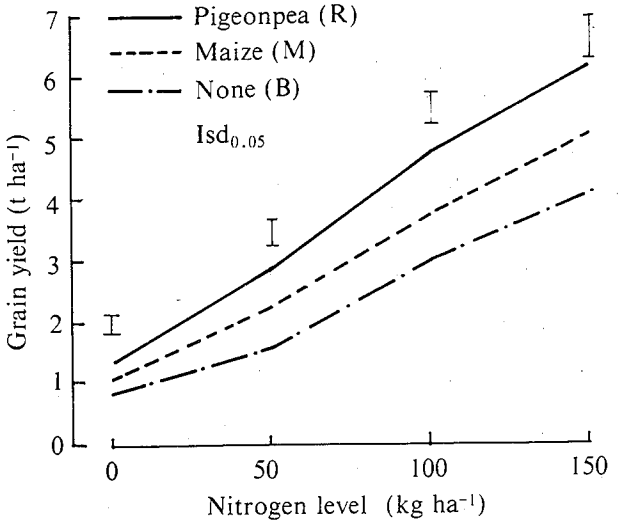

Figure 1. Maize grain yield with different residue managements and nitrogen levels.

maize at all nitrogen levels with incorporation of 2.2 t ha^{-1} of pigeonpea residues. Similar proportional differences between residue treatments at each nitrogen level indicate that the beneficial effect of pigeonpea residues is additional to its possible effect of adding nitrogen to the system. These responses are significant as the local landrace of pigeonpea produces more residue that could be utilized. Thus, it is possible to reduce the amount of expensive inorganic nitrogenous fertilizer needed annually. Further work in this direction needs to be done.

References

ICRAF (International Council for Research in Agroforestry). 1986. Agroforestry in the Peruvian Amazon. ICRAF Newsletter, Nairobi, Kenya 16:2-3.

Lowole, M.W. 1983. Soils of Bunda College Estate. Lilongwe, Malawi: Ministry of Agriculture, Soil Survey Section.

A Ready-reckoner to Help Pigeonpea Researchers Determine Plant Population

Y.S. Chauhan (ICRISAT)

Pigeonpea is grown over a wide range of plant populations, depending on cropping system and time to maturity of the genotype. Extra-short and short-duration pigeonpea genotypes are generally grown at narrow row-to-row and plant-to-plant spacings whereas medium-duration genotypes are grown at wider spacings. Often, pigeonpea researchers interested in determining the optimum plant population for a particular genotype or cropping system need to calculate plant population from a given row-to-row and plant-to-plant spacing. Sometimes they are also interested to know an appropriate row-to-row and plant-to-plant spacing combination for a given plant population. Calculation for both is relatively simple using a pocket calculator. However, the task could be made even simpler by the use of a ready-reckoner. Thus a ready reckoner for plant population was developed using a range of row-to-row and plant-to-plant population, and is given in Table 1. Plant population for a combination not given in the table can be determined using the following formula:

$$\text{Plants m}^{-2} = \frac{10000}{\text{rrsp x ppsp}}$$

where rrsp = row-to-row spacing in centimeters (cm), and ppsp = plant-to-plant spacing in cm.

For calculating plants ha^{-1}, plants m^{-2} needs to be multiplied by 10000. For paired rows, where row-to-row spacing is not equal, an average value of row-to-row spacing may be used. For example, if there are two rows m^{-1}, a row-to-row spacing of 50 cm may be considered although actual distance between rows may vary. A similar approach can be adopted where plant-to-plant spacing is variable.

Table 1. Plants m^{-2} at different plant-to-plant and row-to-row spacings.

Plant-to-plant spacing (cm)	Row-to-row spacing (cm)								
	20	25	30	37.5	40	45	50	60	75
2.5	200.00	160.00	133.33	106.67	100.00	88.89	80.00	66.67	53.33
5.0	100.00	80.00	66.67	53.33	50.00	44.44	40.00	33.33	26.67
7.5	66.67	53.33	44.44	35.56	33.33	29.63	26.67	22.22	17.78
10.0	50.00	40.00	33.33	26.67	25.00	22.22	20.00	16.67	13.33
15.5	32.26	25.81	21.51	17.20	16.13	14.34	12.90	10.75	8.60
20.0	25.00	20.00	16.67	13.33	12.50	11.11	10.00	8.33	6.67
25.0	20.00	16.00	13.33	10.67	10.00	8.89	8.00	6.67	5.33
30.0	16.67	13.33	11.11	8.89	8.33	7.41	6.67	5.56	4.44
37.5	13.33	10.67	8.89	7.11	6.67	5.93	5.33	4.44	3.56
40.0	12.50	10.00	8.33	6.67	6.25	5.56	5.00	4.17	3.33
45.0	11.11	8.89	7.41	5.93	5.56	4.94	4.44	3.70	2.96
50.0	10.00	8.00	6.67	5.33	5.00	4.44	4.00	3.33	2.67
60.0	8.33	6.67	5.56	4.44	4.17	3.70	3.33	2.78	2.22

Continued....

Table 1. Continued.

Plant-to-plant spacing (cm)	Row-to-row spacing (cm)							
	90	100	120	125	150	180	225	300
2.5	44.44	40.00	33.33	32.00	26.67	22.22	17.78	13.33
5.0	22.22	20.00	16.67	16.00	13.33	11.11	8.89	6.67
7.5	14.81	13.33	11.11	10.67	8.89	7.41	5.93	4.44
10.0	11.11	10.00	8.33	8.00	6.67	5.56	4.44	3.33
15.5	7.17	6.45	5.38	5.16	4.30	3.58	2.87	2.15
20.0	5.56	5.00	4.17	4.00	3.33	2.78	2.22	1.67
25.0	4.44	4.00	3.33	3.20	2.67	2.22	1.78	1.33
30.0	3.70	3.33	2.78	2.67	2.22	1.85	1.48	1.11
37.5	2.96	2.67	2.22	2.13	1.78	1.48	1.19	0.89
40.0	2.78	2.50	2.08	2.00	1.67	1.39	1.11	0.83
45.0	2.47	2.22	1.85	1.78	1.48	1.23	0.99	0.74
50.0	2.22	2.00	1.67	1.60	1.33	1.11	0.89	0.67
60.0	1.85	1.67	1.39	1.33	1.11	0.93	0.74	0.56