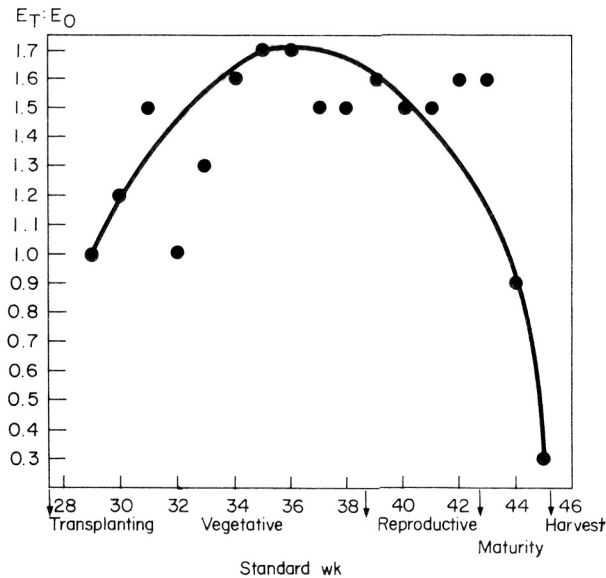


From transplanting to harvest (about 100 d) lysimetric evapotranspiration ( $E_T$ ) averaged 645 mm versus 416 mm open pan evaporation ( $E_O$ ) (see table). Rerage  $E_T:E_O$  (crop coefficient  $K$ ) was 1.55, varying from 1.78 in 1980 to 1.24 in 1983. Average grain yield was 3.4 t/ha. Water use efficiency (kg/ha per mm of  $E_T$ ) averaged 5.3.

To better understand water use during the growing season, the  $E_T:E_O$  values for each week were calculated for 5 yr and averaged (see figure). During peak vegetative growth, rice at Raipur required 1.7 times  $E_O$  for % losses.  $E_T:E_O$  decreases rapidly at maturity. □



Water use pattern of rice (var. R-2384) crop over 5 yr in Raipur, India.

## Rice-Based Cropping Systems

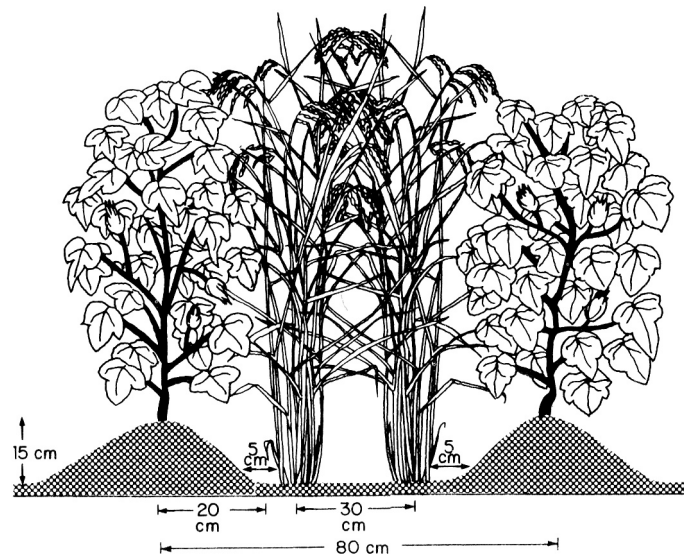
### Intercropping rice and cotton

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To reduce the risk of farming under erratic monsoon conditions, we evaluated rice + cotton intercropping in black-cotton soil at the Agriculture College Farm at Indore (see figure). Cotton was planted on ridges and rice in furrows to suit the moisture needs of each.

Ridges were 15 cm high and 40 cm across at the base. Seeds of Barwaha cotton, which tolerates standing water, were sown 3 Jul 1983 and drought-resistant, salt-tolerant CSR-4 rice was transplanted 27 Jul 1983. At transplanting, there was no standing water and furrows were not puddled, but the soil was soft from a recent rain. Rice was transplanted at 30-cm spacing to allow more light to reach the crop. Within 80 cm, there were 2 rows of rice and 1 row of cotton (see figure). Furrow irrigation was applied as needed.

Rice was harvested the 1st week of Nov when cotton had begun to shed leaves, which facilitates sowing a rabi



Rice + cotton intercropping.

crop such as barley in the furrows. Rice + cotton intercropping gave per hectare yields of 1.5 t cotton, 2.5 t rice grain,

and 3.9 t rice straw. We are conducting further studies to identify optimum plant spacings for both crops. □

*The International Rice Research Newsletter (IRRN) invites all scientists to contribute concise summaries of significant rice research for publication. Contributions should be limited to one or two pages and no more than two short tables, figures, or photographs. Contributions are subject to editing and abridgment to meet space limitations. Authors will be identified by name, title, and research organization.*