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Planting Date as a Potential Parameter for Sustainable Cotton Production in Myanmar

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Abstract

Cotton is of outstanding importance in Myanmar, being used for clothing, edible oil, and seed cake for fishery and dairy production. Moreover, cotton is an important cash crop for small farmers, and substantially contributes to export incomes of the nation. However, cotton production is made difficult due to several insect pests; yields are reduced by direct feeding damage and by quality reduction of fibres. Insecticide sprayings are too expensive and applications difficult especially during periods of continuous light rainfalls, which are typical for cotton growing areas in Myanmar.

Most of the important pest species exhibit a strong seasonality in Myanmar. We hypothesised that planting dates adjusted to this seasonality will reduce the incidence of crop growth and peaks densities of pests. A time window of reduced pest population densities would increase cotton yields in Mandalay Division, the main cotton growing area in Myanmar.

We tested this hypothesis by using the cultivar Lungyaw-3, widely used in Myanmar, adapted to the local conditions, and exhibiting at least partial resistance against some insect pests. We used a 3 times replicated field experiment using 3 planting dates (May, July, August), to record in weekly intervals pest and beneficial insects, weeds, and meteorological data. No pesticides were applied during the experiment.

The July planting date proved to be the best with regard to pest damage levels and yield. Although this planting date exhibited higher levels of insect densities, the cotton plants were able to compensate by producing new squares. The May planting date was the worst one; because of high temperatures and rain at harvest time, plants did not produce bolls and lint of high quality. When cotton was planted in August plant growth was enhanced, however, herbivore densities were high and plants did produce only small amounts of bolls. None of the planting dates resulted in significant differences in natural enemy densities.

Based on these preliminary data we recommend a planting date for cotton in Myanmar in July.

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