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Effects of Irrigation Interval, Sowing Method and Nitrogen Application on Forage and Grain Yield of Barley in the Gezira Scheme, Sudan

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Abstract

The Gezira scheme is the largest gravity irrigated scheme in Sudan with a total area of about 1 million hectares. During the winter season the only crop grown is winter wheat, hence there is plenty of water during this season. The farmers rely entirely on dry sorghum hay during winter. Wheat area covers only one fifth of the whole scheme, the rest of the land stays fallow. Therefore we think of providing a fresh source for green fodder during this season.

This study was carried out in the Gezira Research Farm at Wad Medani during the 2005/2006 season. Barley seems to be a promising winter forage crop. It was meant mainly to furnish the farmer with a full technical package on how to grow the crop as a forage or for seed production. A programme was established to furnish the farmer with a full technical package on how to grow the crop as a forage or for seed production. The study comprised two irrigation intervals (every 10 days and every 15 days); three sowing methods (on flat, 60 cm wide ridges and 80 cm wide ridges), sown on lines at 20 cm spacing). Nitrogen at 86 kg N ha⁻¹ was applied either as one dose at sowing or in a split dose of 43 kg N ha⁻¹ at sowing and at 30 days after sowing.

The study revealed that:

- Irrigation every 10 days gave the highest plant height, dry weight and grain yield.
- Sowing on 80 cm ridges gave the highest grain yield when nitrogen was added in a split dose.

Keywords: Barley, irrigation, nitrogen, sowing method