

# EFFECT OF METHOD OF SEED BED PREPARATION, MULCHING AND TIME OF PLANTING ON YAM IN WESTERN NIGERIA

R. Lal and S.K. Hahn\*

## SUMMARY

Mulching of yam seed beds reduced soil temperature and improved emergence, time of emergence, yield per hill and the total yield of *Dioscorea rotundata* yams on a sandy soil in Western Nigeria. Comparison of mounds with ridged and flat seed beds showed that these different treatments had no significant effect on tuber yield. Planting about six weeks before the onset of the rains and the use of mulch is indicated as a good technique to obtain high yield.

## RESUME

L'utilisation de paillis dans les lits de plantation réduit la température du sol et favorise la levée, le temps d'émergence, le rendement par poquet et le rendement global des ignames *Dioscorea rotundata* lorsqu'elles sont cultivées en sol sablonneux à l'Ouest du Nigéria. Lorsque la comparaison a été faite entre la culture en buttes et en lits de semis non élevés, les résultats ont montré que la différence de rendement en tubercules est peu sensible, qu'il s'agisse de l'une ou de l'autre méthode. La plantation six semaines avant le début des pluies et l'utilisation de paillis permettent d'obtenir un rendement élevé.

## RESUMEN

El cubrimiento de almacigos de ñame redujo la temperatura del suelo y mejoró la emergencia, el tiempo de emergencia, rendimiento por cepa y rendimiento total de ñame, *Dioscorea rotundata*, en un suelo arenoso de Nigeria Occidental. La comparación de camas con almacigos alomados o planos demostró que no hay diferencia entre ninguno de estos tratamientos en cuanto al rendimiento de tubérculos. La siembra, cerca de 6 semanas antes del establecimiento de las lluvias y el uso de cobertura, se indica como una buena técnica para obtener altos rendimientos.

## INTRODUCTION

Yam cultivation in West Africa extends from the central Ivory Coast to the Cameroon mountains, in both the forest zone and the southern parts of the savannah<sup>1,9</sup>. Annual production in West Africa is about 31 million metric tons, or two-thirds of the total world production.

Yams require about 8 months from planting to maturity, and need, depending on soil conditions, 1500 to 1800 mm of rain during the growing period<sup>6</sup>. They have a shallow root system. In Western Nigeria, where the dry season occurs from November until March, 'early planting' is generally done during the period from November to February. It has been shown that yams planted from November to January give 30 percent higher yield than those planted at the onset of rains<sup>13</sup>.

Yams are often planted on mounds. The size of the mounds depend primarily on soil depth and the depth of the water table<sup>13</sup>. On sandy soils however planting is generally on flat beds<sup>11</sup>. Planting of yams in trenches has been shown to be of advantage for shallow and stony soils<sup>8,14</sup>. Experiments conducted at Wenchi and Ejura in Ghana showed that yams grown on ridges yielded more than those grown on mounds<sup>10</sup>. In Puerto Rico planting on raised beds increased the yield.

Farmers of West Africa traditionally place a 'cap' of dried straw on the mounds over newly planted setts<sup>12</sup>. Previous experiments in Ghana showed a favourable effect of mulching on yam production particularly in the savannah zone<sup>2,4</sup>. In Nigeria, mulching improved emergence by 50 percent and the overall yield by 3.75 tons per hectare. Mulching immediately after planting as compared with mulching at a later date was advantageous. Soil temperature measurements taken at 2 p.m. showed temperatures of 37.5 and 40°C. respectively for mulched and unmulched plots<sup>13</sup>. Mulching has been proved beneficial for both late and early yam plantings.<sup>5</sup>

\*International Institute of Tropical Agriculture, Ibadan.