

INTEGRATION OF YAM INTO A CONTINUOUS FARMING SYSTEM IN DAHOMEY

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SUMMARY

Although it is technically possible to integrate yam production into continuous rotations with a sufficient level of fertilizer use, this creates particular secondary problems for yam production. These are intense weed competition, which yams are badly adapted to meeting, and the build up of populations of yam root nematodes. As an intermediate practice between shifting cultivation (or long natural fallows in settled farming) the use of planted grass fallow of *Andropogon gayanus* is a practicable alternative but one which, without the use of fertilizers, must be expected to continue a slow downward trend of fertility, and require increased land holdings per family to maintain food production.

RESUME

Bien qu'il soit techniquement possible d'intégrer la production de l'igname dans des rotations permanentes en maintenant un niveau suffisant d'engrais, cela crée des problèmes secondaires particuliers à la production de l'igname. Ce sont d'une part, la compétition active des mauvaises herbes que l'igname n'arrive point à supporter, et la formation de populations de nématodes d'igname d'autre. Une pratique intermédiaire entre la culture itinérante (ou de longues jachères naturelles en culture permanente) consisterait à utiliser l'*Andropogon gayanus* comme jachère, ce qui représente une voie pratique possible, mais qui, faute d'engrais, renforcera la tendance à la baisse de la fertilité et nécessitera que chaque famille augmente les superficies qu'elle cultive pour maintenir la production alimentaire.

RESUMEN

Aunque técnicamente es posible integrar la producción de ñame a una rotación continua, con el uso adecuado de fertilizantes, se crean problemas secundarios particulares para la producción de este cultivo. Tales problemas son: competencia acentuada de malas hierbas, para lo cual el ñame está poco adaptado, y el crecimiento de poblaciones de nematodos de la raíz del ñame. Como una práctica intermedia entre la agricultura nómada (o empleo de descansos largos del terreno en la agricultura sedentaria) el establecimiento del pasto *Andropogon gayanus* (para el período de descanso) es una alternativa práctica en la cual, sin embargo, puede esperarse un continuo descenso de la fertilidad del terreno si no se usan fertilizantes; requiere por otra parte que la tierra que detenta cada familia se incremente, para mantener la producción de alimentos.

INTRODUCTION

Shifting cultivation occurs side by side with cotton farming in northern Dahomey. Cotton farming, which can be integrated into settled farming based on a variety of crops has made great strides recently, but yam cultivation is a major obstacle. Yam farming methods are highly traditional and there are also many technical problems. This paper reports attempts by IRAT to integrate yam production into a modern production system.

SOIL: PHYSICAL PROBLEMS

Farming without very great care toward this rapidly reduces the organic matter content of the soil leading to degradation of its structural characteristics, especially porosity.

Yam cultivation is not well suited to compacted soils. The harmattan winds, starting immediately after the normal time of ridging for yams in March-April, and with alternate moistening by the early rains and desiccation due to the wind and high temperatures, accelerate soil deterioration. Soil compaction seems to have at least two serious adverse effects on yam growth. It increases heat conduction considerably, which causes an increased risk of rotting of the setts, and also causes considerable resistance to shoot emergence.

For continuous yam cultivation it is necessary either to work out farming practices to overcome the drawbacks associated with physical degradation of the soil, or develop a method that will periodically

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