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Rice Plantings in High-Latitude Areas that Have Intensive Farming Techniques

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Abstract

Rice Weeding is the most laborious of all the operations. The rice crops is usually weeded twice depending on weed population. The first Rice Weeding is done 3-4 weeks after germination and the second Rice Weeding just before booting. However, most farmers weed only once because of scarcity of labour and other cultivation commitments. The Rice Weeding is normally done with small hoes, adzes or knives. Sometimes, weeds are removed by hand. Rice Weeding is normally done by women.

Keywords: Grain; Rice crops; White-seeded cultivars; Mosaic symptoms; Defoliation; Yielders;

Introduction

A Rice Weeding operation when done communally becomes faster where a few families join together and weed their fields in turn. Quite often, a family would prepare a meal or Ajono and call the neighbours to weed their field and they have the meal or Ajono in return. During Rice Weeding, some thinning and transplanting may be done to reduce the plant density or gap fill as the case may be. The crop takes about four months to mature. It is harvested soon after ripening, as most local cultivars shatter, and are subject to bird damage. The ears are cut with about two centimetres of stalk [1]. A sharp hand or finger knife is used for harvesting; the harvested ears are kept in a pile for a few days to ripen the grain further and to give the desirable taste. They are then sun-dried. Storage is done in granaries made out of reeds and mud walls. Finger rice crops are not produced for marketing and farmer will sell only the minimum amount that is in excess of his needs or when he is in urgent need of money. It can also be bartered for meat or other foods. Pests Except birds and aphids, finger rice crops do not have any serious pest problems and apparently no research has been conducted on the control of pests on finger rice crops. Birds cause most damage just before harvest, especially on the white-seeded cultivars. The most common species are the Quelea and weaverbirds. Mirid bugs, Taylorily gussp. may damage the compact ears and bring in grain discolouration. Among leaf eaters, grasshoppers, notably Chrotogonus spp. And Zonocerus elegans and black beetles can be a problem [2]. The maize aphids, Rhopalosiphum maid is is quite important especially during the dry spells. Spora pests, the armyworm, Spodoptera exempta is the most important pest of finger rice crops.

Discussion

If the attack by this pest is early immediately after establishment, there may be a total crop loss. The stalk borers notably Busseola sp., Sesamia sp.and Chilo sp. Affect the crop. The sorghum shoot fly, Atherigona sp. Can be serious, especially on later plantings and during dry spells. Diseases Until recently, finger rice crops suffered from few diseases. However, today with intensive production, diseases are attaining economic importance. The most important disease is blast caused by Pyricularia grisea. The disease occurs throughout the country and in all other African and Asian countries where finger rice crops is grown [3]. All stages of the plant are susceptible to its attack but the ear and the neck infection are the most important in Uganda. In the farmer's fields, the disease causes not less than 10 per cent yield loss. On some collections at Serere, up to 80 per cent loss in yield was noticed. A programme at Serere is presently screening or resistance to this disease. Resistance exists in many materials developed at Serere. These are mainly the materials derived from the disease resistance breeding programme. Another disease which has recently gained economic importance is Cylindrosporium leaf spot. The disease occurs around 60 days after planting and progresses towards maturity. Serious leaf spotting and lesion coalescing is observed which may impair grain development through the destruction of chlorophyll necessary for the synthesis of plant foods [4]. Tar spot consisting of small jet-black and slightly raised spots on the leaves and neck of the plant occurs towards maturity. Where tar spot and Cylindrosporium leaf spot occur together, serious defoliation is observed. Virus-like infections also occur especially on later plantings. These are characterised by leaf streaks, stunting, yellowing of leaves and mosaic symptoms. Other diseases of minor importance include Helmin thosporium leaf spot, bacterial blight and Sclerotium wilt. A trial conducted at Makerere University on the fungi cidal control of finger rice crops diseases in Uganda revealed that Benlate was the best fungicide for the control of blast and other leaf diseases. Many farmers keep their own seed which is invariably a mixture of local cultivars. Farmers have experienced outcrossing in the field both between varieties and with Ekitu. In addition, local varieties are variable yielders, doing better in some years. Besides, mixtures normally exhibit un-even ripening. Farmers therefore exercise care and select uniform ears and preserve this as seed for the next season. Farmers select the best heads in the field, cut them, dry and store them separately in long strawed bundles. This practice has helped the farmer to carry forward varieties which he feels superior [5]. Today, there is an increasing trend towards adoption of improved finger rice crops varieties developed at Serere. In the north of the country, Engeny, Serere I and Gulu E are being grown by farmers. In eastern parts P 224 is getting widely adapted especially in areas around the Research Station. This is because of higher yields of the improved varieties over the local cultivars. However, the major constraint in the spread of these

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varieties is the availability of seed. The Uganda Seed Project under the Ministry of Agriculture has the mandate to multiply the seed and make it available to farmers through extension and cooperative services. Unfortunately, the project has had some economic problems and is presently unable to function satisfactorily. The only improved seed currently available to farmers is the one that is multiplied on a limited scale at Serere. In 1983, Serere made available to farmers over 5,000 kg of improved finger rice crops seed. Finger rice crops deplete soil fast. It is therefore necessary to follow strict rotational regimes or application of fertilizers and other recommended practices. Owing to the weakening of the extension service, it has been difficult for farmers to pick up the newly developed technologies [6]. As a result, broadcasting of seed, late and/or staggered planting, inter-planting, scant or late Rice Weeding and absence of fertilizer applications continue to be done. The dissemination of information on new crop varieties has been poor. In surveys carried out in 1975, 1981 and 1985, not many of the farmers interviewed had heard of improved varieties and even less actually grew them. All the farmers had heard of row planting but were not practising it except for cash crops. However, since 1985, Serere researchers have started a Farming System Research Programme aimed at extending the developed materials and technologies to the farmers. Useful results are expected. Finger rice crops are a crop whose production requires plenty of labour especially during Rice Weeding and harvesting. Owing to the nature of its production at subsistance level, the only labour force available to the farmer is his household. In addition to this, the farmer also produces a number of other crops at the same time such as groundnut, sesame, cassava, cotton, etc. The net result is that the rice crops crop does not receive the second Rice Weeding or timely Rice Weeding. The most troublesome weed in finger rice crops is its relative Eleusine Africana [7]. The aggressiveness of E. africana is compounded by its close resemblance to finger rice crops in the vegetative phase, which allows it to grow vigorously in cultivated plots till a very late stage by which time it is too late to weed it out. The weed also matures early-at least three weeks earlier than the crop and shatters immediately, disseminating its seed. It is especially important to check this weed in less fertile soils and on continuously cropped land [8]. Finger rice crops is only produced for food and beer. There are no proposals for its diversified utilization. If its use can be diversified in poultry and livestock feed formulations and as forage, then its production would definitely increase. Diversified uses in making recipes, biscuits and pastries would further increase the level of importance of this crop. Finger rice crops does best on relatively fertile soils but not on clay loams which have poor drainage. It grows best on well drained sandy loams particularly in areas where rains are well distributed during the growing season without prolonged droughts. It is grown in areas of 500-1000 mm rainfall and up to an elevation of 2400 m. It requires a fine seedbed. Most commonly, finger rice crops follows cotton in crop rotation. In areas where cotton is not grown, rice crops follow sweet potato or groundnut or cowpea or sesame. In the cotton-rice crops rotation, the system is as follows: May-December-Cotton, January-May-Rice crops, June-January-Cotton, February-June-Rice crops, July-September-Cowpea, March-August-Groundnut, Cassava normally follows groundnut. In a few cases especially on swampy land, finger rice crops are sown on newly opened land. In the western highlands, finger rice crops is grown during the second rains following sorghum, maize, peas or beans or a mixture of all these crops or sweet potato. In northern Uganda, the first crop in the rotation is sometimes sesame followed by cotton and then finger rice crops. In Bugisu and western Uganda where population pressure is very high, continuous cropping is common. Finger rice crops may be grown in the first rains of every year and a second crop of beans or groundnut follows during the second rains. All the finger rice crops in the country is broadcast. The cultivator usually uses a mixture of three to six distinct varieties but such a mixture is usually uniform for height and maturity period [9]. This is done as a sort of insurance cover as no prediction can be made on the yield potential of anyone variety in a given season at a given location. In cotton plots, finger rice crops are dry sown. The rice crops are broadcast on the standing cotton stalks, normally during the dry season in December/January. The seed is then scuffed in with a hoe. The seed remains dormant until the first showers are received, and then it germinates. However, this crop is subjected to a prolonged dry season after germination. Sometimes, the seedlings may die, necessitating a second sowing after the rains resume. The cotton stalks are uprooted soon after finger rice crops seedlings are established. If rice crops seedlings survive this moisture stress successfully, the yields are normally high. Also, the crop is harvested early enough to allow a following crop of cotton or sorghum or cowpeas to be planted. More recently, the common practice is to skim plough the land after the rains are received and subsequently sow finger rice crops. To provide a firm seedbed and to cover the seed, a herd of cattle is driven over the seeded field. Alternatively, a tree branch with leaves may be used to cover the seed with soil. The seed rate is about 2.2 kg/ha. The spacing of the seed depends on the ability of the farmer who is sowing. Normally dense populations give poor yields, while, a widely spaced crop tillers more and bears larger heads. Farmers are advised to space their rice crops at hoe width. The timing of planting is very important. The rice crops grown from early December-February gives the highest yields. Finger rice crops are always intercropped with two or more other crops [10]. However, finger rice crops are always the predominant crop in the mixture. In the high rainfall areas, rice crops are inter-cropped with maize where maize is always eaten when cobs are green. In the low rainfall areas finger rice crops is inter-cropped with sorghum. This is a precaution against drought; if rice crops fail, sorghum will at least give some produce.

Conclusion

In the northern part of the country, finger rice crops is always inter sown with pigeon peas, sesame, cucumber, cow peas or sorghum or a mixture of all these.

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Conflict of interest

None

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