Millet Production

Extension guide 16
Guide on

MILLET PRODUCTION

Extension Guide No......
Home Economics Series No.....

Produced and Distributed by

National Agricultural Extension and Research Liaison Services
Ahmadu Bello University,
P. M. B. 1067, Zaria, Nigeria.
REVISED EXTENSION GUIDE ON MILLET PRODUCTION

INTRODUCTION:

Millet is one of the most important cereal crops widely cultivated in Northern parts of Nigeria. It is an early maturing (80 – 100 days) crop that is more adapted to drier conditions and low soil fertility than sorghum. It is planted by farmers with the first rains. The grains are usually consumed as tuwo or fura or koko in the North and in many other ways depending on the local dietary habits of the people. The crop is also used for livestock feed as well as for brewing local drinks (Burkutu) and recently in modern brewing industries.

SITE SELECTION:

Millet does well in a wide variety of soil types. The crop is well adapted to well drained loam and sandy loam soils. The light soils are suitable for the
production of the early maturing millet (gero) while the heavier soils are used for growing late maturing millet (Maiwa).

**LAND PREPARATION:**

Good land preparation for millet production enhances good plant development. Hence land should be properly harrowed, ploughed and ridged. This is because proper land tillage reduces early weed infestation, enables early seed emergence and root penetration. It also facilitates water penetration, checks run off thereby increasing water storage capacity of the soil. Proper land preparation has several advantages including increased grain yield and should therefore be encouraged. Seeds can be sown on ridges or on the flat depending on soil type. Ridges should therefore be well prepared at one metre apart. Ridging improves drainage and is preferred in areas that are subject to water logging.

**VARIETIES:**

There are two major types of recommended
and local varieties of millet available.

(a) Gero (early millet) varieties – short season photo insensitive millet. This matures within a period of 70 – 100 days and is suitable in relatively dry areas such as Sokoto, Kano, Jigawa, Katsina, Zamfara, Borno, Yobe and Kaduna states (Northern Guinea, Sudan Savanna, Sahel).

The improved recommended varieties are:-

i. Ex-Borno

ii. Nigerian composite SE 13

iii. Dwarf composite SE 2124

iv. GB – 8735

v. Gwagwa

vi. SOSATC-88

(b) Maiwa (late millet) varieties – long season photo sensitive millet – These mature between 100 – 120 days and are suitable in relatively wet areas such
as Southern Kaduna, Adamawa, Taraba, Niger, Kwara and Plateau states (Southern and Northern Guinea Savanna). It flowers at the end of the rains and yields much lower than gero.

The improved varieties include:

i. Maiwa composite

ii. Bristle composite

iii. SEB

iv. SE 214

**SEED RATE:**

Three to four kilogramme of see – (3 to 4 medium size mudus) will be adequate to plant one hectare. Plant five to eight seeds per hole and later thin to 2 – 3 plant per stand at 2 – 3 weeks after sowing. The depth of sowing is dependent on soil type; in light soils (planting depth is between 3 – 4cm), in medium soils (2-3.5cm) and heavy soils (1.5-2.0cm).
Table 1: Characteristics of some millet varieties

<table>
<thead>
<tr>
<th>OLD VARIETY CODE</th>
<th>NEW NAME</th>
<th>YIELD/YA (kg)</th>
<th>MATURITY DAYS</th>
<th>ADAPTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex-Borno</td>
<td>SAMMIL-1</td>
<td>2500-3000</td>
<td>80-90</td>
<td>All Savanna zones.</td>
</tr>
<tr>
<td>Nigerian composite</td>
<td>SAMMIL-2</td>
<td>2000-2500</td>
<td>80-90</td>
<td>All Savanna zones.</td>
</tr>
<tr>
<td>Dwarf composite</td>
<td>SAMMIL-3</td>
<td>1500-3000</td>
<td>80-90</td>
<td>Sudan and Sahel Savanna zones.</td>
</tr>
<tr>
<td>Maiwa composite</td>
<td>SAMMIL-4</td>
<td>1000-2000</td>
<td>100-120</td>
<td>Southern, Northern Guinea and Sudan Savanna zones.</td>
</tr>
<tr>
<td>Bristle composite</td>
<td>SAMMIL-5</td>
<td>2500-3000</td>
<td>80-90</td>
<td>All savanna zones.</td>
</tr>
<tr>
<td>S.E. 13</td>
<td>SAMMIL-6</td>
<td>2500-3000</td>
<td>65-85</td>
<td>All Savanna zones.</td>
</tr>
<tr>
<td>S.E. 2124</td>
<td>SAMMIL-7</td>
<td>2500-3000</td>
<td>65-85</td>
<td>All Savanna zones.</td>
</tr>
</tbody>
</table>

Source: Code and Descriptor List of crop varieties released by IAR, Samaru.
**SEED SELECTION:**

Select millet heads which are typical of the variety and free from smuts (blacksoot on grains) and ergots (honey-like substance on grains) at harvest time. Thresh seeds for sowing from the selected heads shortly before sowing.

**SEED TREATMENT:**

Treat your seed with Apron Plus 50DS at the rate of one sachet (10g) to 3kg of seeds (approximately one medium size mudu) before planting for protection against soil born disease and insect. Ensure that the seeds are well covered by the dressing chemical by mixing thoroughly in an enclosed container.

**SPACING:**

Millet compensates vary readily for loss of stands or variations in spacing by increased tillering. Most farmers inter crop millet with other crops such as sorghum, cowpea or groundnut. For mixed crops
it is suggested that millet should be sown two metres apart within rows that are one metre apart. **Sole** crop millet is sown on flat or ridges at spacing of 75cm x 50cm in the Sahel and 75cm x 25cm in the Southern Guinea Savanna. The difference in spacing is due to high variation in rainfall between the zones. Areas of good rainfall will support high crop density.

**TIME OF SOWING:**

It is important to sow gero millet at the beginning of the early rains. Maiwa millet should be sown about two weeks later. Early sowing is an important factor as it ensures early harvesting which reduces pests and insect incidence.

**FERTILIZER APPLICATION:**

Apply 60kg Nitrogen and 30kg each of phosphorus and potassium as recommended for most of the Savanna areas except the Southern Guinea Savanna where lower rates may be used. This can be
achieved by applying 4 bags/ha of NPK 15-15-15 at land preparation or at sowing and then followed by top-dressing with either one (1) bag of Urea or 2 bags of CAN/ha three weeks after the first application.

**MANURE:**

After five to eight tons of farm yard manure or compost per hectare (*if available*). The farm yard manure should be applied when the soil is moist and incorporated into the soil at least two weeks before sowing.

**THINNING:**

Thin to 2-3 plants per stand at about two weeks after sowing. Thinning should be done when the soil is moist preferably in the morning or in the evening.

**WEED CONTROL:**

Two or three weedings are required. The first weeding should be at 2-3 weeks after sowing and the second at 3-4 weeks after the first weeding. The
third weeding is optional depending on the level of weed infestation. Timely weeding and earthing up are necessary to minimise weed infestation and lodging.

For sole crop millet, application of recommended herbicide has been found to provide effective weed control. About four litres of Gardorprin ‘A’ per hectare is recommended for application as pre-emergence herbicide which is to be at about two days after planting on weed from seed bed field.

**PEST CONTROL:**

The millet stem borer (*coniesta ignefusalis*) is the most wide spread and most damaging insect pest. Control measures include early sowing, destruction of infected crop residues by burning or composting. Systemic insecticides, particularly granular carbofuran give more effective control than contact insecticide such as carbaryl. Seed dressing with carbofuran is ineffective. Shoot flies, millet head worms and bluster beetles are gaining increased
status in Bauchi, Borno, Sokoto states in Sudan Savanna and the Sahel zones. Meanwhile there is no control measure for millet head worm. Contact insecticide such as cymbus can be used on shoot flies and blister beetles when there is serious attack.

Bird damage can be particularly severe on early millet. Birds should therefore be controlled from time of grain formation. Use of varieties with hairs or bristles such as bristle composite will reduce bird damage.

DISEASES:

The main diseases of millet include:

(a) smut caused by \textit{(Tolyposporium penicellariae)} and controlled by seed treatment with Apron plus.

(b) Downy mildew caused by \textit{(Sclerospora graminicola)} can be controlled by a combination
of the two or more of the following – early planting, crop rotation, use of resistant varieties and seed treatment with Apron plus.

(c) Ergot caused by (*Claviceps fusiformis*) can be controlled by sowing free and non-infected seed and resistant varieties e.g. SMMIL-6 and SAMMIL-7.

**MATURITY:**

The recommended early varieties mature in 70 – 90 days while late composite matures in 100 – 120 days.

**HARVESTING AND THRESHING:**

Harvesting should be done as soon as the seeds cannot be crushed between two fingers. The heads are cut with sharp knives and dried properly before threshing.
YEILD:

Farmers grain yield range between 450 and 1400kg/ha under mixture. But under improved management practices, the following yields under sole from the recommended varieties are possible.

- Ex-Borno: 2500 - 3500kg/ha
- Nigerian composite: 2000 - 2500kg/ha
- Dwarf composite: 1500 - 2000kg/ha
- Bristle composite: 2500 - 3000kg/ha
- SE 13: 2500 - 3000kg/ha
- SE 2124: 2500 - 3000kg/ha
- Maiwa composite: 1500 - 3000kg/ha

STORAGE:

Millet to be kept for six months or longer should be treated with Actellic 2%, Damfin 2% or coopex dusts to protect it against storage pests.
SUMMARY:

1. Choose a good site.
2. Treat seeds before sowing.
3. Use recommended varieties.
4. Plant as soon as rains are established.
5. Weed as recommended and on time.
6. Control diseases, pests and birds are required.
7. Harvest on time to avoid field infection before storage.
8. Store in a dry place with appropriate chemical when available.