SPHI Seed System Community of Practice

Summary of Discussion Topic

Title: Topic (10 a)-Effect of Ratooning on vine and root production

1. Summary of participation statistics

Table 1 shows the summary of participation statistics under this topic.

Duration	Lead discussant; institution & country	No. of contributions	No. of unique respondents	No. & type of institutions	No. of countries
9 days 5th Apr- 13th Apr 2016	SOME Koussao - INERA, Bukina Faso	23	16(12 male, 4 female)	NARIs (4), CIP (7) University (1)	9

2. Introduction

The topic on rationing had featured in other discussion topics for example *"definitions of classes of seed and harmonization of terminologies", and another on "how to estimate the multiplication rate"*. In this discussion round, the aim was to share experiences across countries on the effect of rationing first on vine production mainly in screenhouse, but also in net tunnel, in field and whether there is an optimum number of roots that can be recommended, effect on root production, specifically does rationing have an effect on growth in the field, resistance to pests & diseases, earliness, root yield (number and size of roots) and on root quality (dry matter, beta-carotene and shelf-life). The lead discussant was SOME Koussao from INERA in Burkina Faso. The discussion drew 23 contributions from 16 respondents, and brought experiences from 9 countries. Majority of the contributions were by CIP scientists. This summary highlights the key points, any areas of consensus or disagreement, and any suggested ideas, which members could consider in their work.

3. Key points and areas of consensus/disagreement.

The following are key points in which there was consensus based on country experiences:

Effect on vines in screenhouse and net tunnel

- The question of effect of ratooning on diseases and pests should not arise in screenhouse and net tunnels since there are expected to be vector proof.
- Vine vigor is maintained with fertilizer application. With fertilizer and good management, there can be almost unlimited number of ratoons in the screenhouse. In Mozambique, they have had up to 14 ratoons without losing vine vigor but with adding NPK fertilizer and urea after ratooning. Without fertilizer application, vines become thinner.
- With sandponics vine vigor is maintained with rationing since the drip feeds the plants.
- In the net tunnels, vine vigor is compromised with increased ratooning. The main limitation is space. It is noted that ratooning increases branching, which leads to competition for the limited space
- Effect of ratooning (especially in net tunnels) on vines also depends on variety. In Rwanda, it was observed that Vita and Kabode perform better that Githingumukungu, which is a crawling variety and Cacearpedo, which is thin and erect.
- The structure of the net tunnels (some net tunnels do not last for long e.g. not more than 3 years).

Effect on vines in open field

- The agro-ecology is an important variable on the effect of ratooning on vine production in open field. Illustrating example drawn from Rwanda where in cool weather (in the north), number of ratoons can go

up to 6-8 (with 8.6% decrease from 1st ratoon to 3rd ratoon); while in warm areas (in the south), can have 4 to 6 ratoons (with 21 % decrease in vine from 1st ratoon to 3rd ratoon).

- Also other factors that influence the effect of ratooning on vine production include: the type/level of planting material you start with, their vigor, the variety and the type of soil. In Ethiopia, for example, variety Hawassa 83 and Kulfo showed significant reduction in vine yield and vine thickness after 3rd season (without fertilizer application), and starting with pre-basic material derived from net tunnel or small screen house.

Effect on root production

- The relation between ratooning and root yield could have more to do with setting in of disease and pest with increased number of ratoons. Similar effects have been observed in sugarcane and cassava for example.

Another observation (from Zambia) is of delayed bulking, depending on time it is done, it may not be possible to recover the expected yield during a particular growing season. For example, if the crop is ratooned in December to provide planting material for a new crop and the ratoon is harvested in February to provide roots and vines. If the crop is not rationed in December, it yields bigger roots and is harvested early to provide early income in the season.

4. Status on suggested follow up actions on emerged ideas or techniques (to updated at CoP meeting)

Suggested areas for research/study noted in Table 2.

Table 2: status of suggested follow up actions on ideas or techniques

Suggested idea for action	Follow up action taken	Where (country) & institution	Feedback to CoP
To study yield expression from cuttings at different stage of ratoons. The hypothesis is that the intensity of ratooning will affect yield of subsequent cuttings. The intention in these practices is to increase multiplication rates and the availability of planting materials, which is not expected to compromise yield.			