TECHNICAL SHEET

Fragments Planting Technical (FIP)

Definition of the FIP technical

The FIP technical is a horticultural propagation technique for banana plants. It was developed by the Centre Africain de Recherche sur les Bananiers Plantain (CARBAP) located in Njombé, Cameroon (Meutchieye, 2009). It has given more than satisfactory results since it allows for intensive production with high productivity (on average about 50 plants per bulb) of healthy shoots, in 3 to 4 months, and at any time of the year (thanks to the greenhouse culture which increases the temperature in winter) (Marsaudon, 201). FIP is a very 'plastic' technique because it can be easily adapted to the means of communities and farmers, without reducing yields in terms of plants and quality. Indeed, with a single small shoot, up to 100 plants can be obtained at the end of the year (Meutchieye, 2009). To succeed in this agricultural technique, three essential conditions must be met: i) the germinator: where the multiplication will take place; ii) the greenhouse: the enclosure that must cover the germinator; iii) the shade house: which will reduce direct sunlight by about 50%. The presence of trees in the direct vicinity is usually enough.

Procedure for the PIF technical

- Preliminaries: the rejects must be recovered at the "closed bayonet" stage. Before treating the shoots, a 1m x 1m x 0.5m germarium (cleaned with 2.6% bleach) must be filled with about 25 cm of white sawdust (or crushed coconut fiber). Then treat the contents with fungicide (10L at 2ml/l water) and insecticide (15L of insecticide at 0.5ml/l water). Finally, you must water abundantly (100L of water per container) then cover with a tarpaulin.

- **Different stages:** figure 1

1. Washing of the recovered waste with bleach and drying for 24 hours on a table previously washed with bleach

2. The bulbs are ''peeled white''.

3. The secondary buds are exposed successively

4. The central bud is neutralized (make a cross-shaped incision in the centre of the bulb 3 cm deep).

5. The bulbs are treated (insecticide/nematicide) and then left to dry for 72 hours.

6. The remaining height of the pseudostem is reduced to 2-3 mm with a clean knife (cleaned with bleach), and a cross-angle incision is made again in the centre of the explant.

7. Carefully, the bulbs are placed in a germinator filled with about 20 cm of white sawdust. Two days before, the germinator will have been treated (fungicide, insecticide), sufficiently watered and the frame covered with a tarpaulin.

8. 24 hours after germination, water thoroughly; water the germinator regularly. Two weeks later, numerous shoots can be seen per bulb.

9. 30 days after sowing, young plants with 3 to 5 leaves are carefully removed with a scalpel blade or a sharp knife.

10. The seedlings are repotted into pots of about 9 L with a sterilised mixture of 50% river sand and 50% potting soil. The young plants are fertilised (foliar fertiliser). This rearing phase under the "50-60%" shade varies from 1.5 to 3 months.

Figure 1 : different stages of the PIF technical (source: INRA, 2014)

NB: It is only after 6 to 10 weeks that the seedlings can be planted in the field.

Features of the technology

The FIP allows mass production of healthy material outside the field in 3 or 4 months and always of the year with an average of more than 200 plants per explant.

Bibliographic references

INRA (2014) : Unité de Recherche Agro Systèmes Tropicaux ; Séminaire Banane Plantain ; 2p.

MARSAUDON C. (2019) : La technique des Plants Issus de Fragments de tige (P.I.F.) ; Fiche technique ; 5p.

MEUTCHIEYE F. (2009) : Fiche Technique de multiplication des bananiers par la méthode de PIF Plants Issus de Fragments de tiges ; Manuel de formation pour les communautés rurales ; 15p.

Web sites consulted

https://www.agripedia.nc/sites/default/files/pdf/fiche_2074.pdf ; 26/07/2021 at 09h43

http://transfaire.antilles.inra.fr/IMG/pdf/ft_pif.pdf ; 26/07/2021 at 09h55

http://transfaire.antilles.inra.fr/IMG/pdf/doc6_Fiche_PIF_def.pdf ; 26/07/2021 at 10h05

http://www.secaar.org/documents/documentation/A12%20Bananes%20PIF.pdf ; 26/07/2021 at 10h14

https://fr.wikipedia.org/wiki/Plants_issus_de_fragments_de_tige ; 26/07/2021 at 10h25

Other references

National Center of Specilization on Plantain Banana ; HOST INSTITUTION : NATIONAL CENTER OF AGRICULTURAL RESEARCH (CNRA) / Cote d'Ivoire ; Coordonator : Dr Assolou Nicodème ZAKRA ; Email : nicodemezakra@hotmail.com ; Telephone : +225 22489602 / +225 22489642 / +225 08101241