

## Flowering synchronisation between male and female West African cultivated yams (*Dioscorea cayenensis-rotundata* complex)

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### Summary

It has long been admitted that male and female cultivars of *Dioscorea cayenensis-rotundata* complex do not flower at the same period and consequently natural outcrossing rarely occurs. Flowering in thirteen (7 males and 6 females) traditional cultivars were studied. Four main results were obtained: i) the first bud emergence occurred 25 days earlier in males; ii) the male and female first flower opening overlapped for 10 days (85 to 95 days after sprouting);

Table 1. Sex, ploidy level and geographic origin of 13 yam cultivars belonging to *D. cayenensis-rotundata*

| Cultivar   | Sex    | Ploidy level | Geographic origin |
|------------|--------|--------------|-------------------|
| Yaobadou   | male   | 8x           | Côte d'Ivoire     |
| Baniakpa   | male   | 6x           | Bénin             |
| Frou       | male   | 4x           | Bénin             |
| Gnan       | male   | 4x           | Côte d'Ivoire     |
| Kroukroupa | male   | 4x           | Côte d'Ivoire     |
| Sopéré     | male   | 4x           | Côte d'Ivoire     |
| Zrézrou    | male   | 4x           | Côte d'Ivoire     |
| 1800       | female | 4x ?         | Cameroon          |
| C20        | female | 4x           | Cameroon          |
| Krenglé    | female | 4x           | Côte d'Ivoire     |
| Lokpa      | female | 4x           | Côte d'Ivoire     |
| Sopéré     | female | 4x           | Côte d'Ivoire     |
| Dahomé     | female | 4x           | Bénin             |

DO+38 and DO+66. Only cv Zrézrou was really earlier (DO+23/41) and cv Sopéré later (DO+71/89). Estimated on the basis of mode values, FFO mostly occurred at FBE+28/35, except for Frou (+46 days). These results showed that male flowering was a continuous process which started at DO+59 and continued up to DO+120 with a maximum around DO+90. On a given plant, when male anthesis started, all flowers opened in 15 to 20 days.

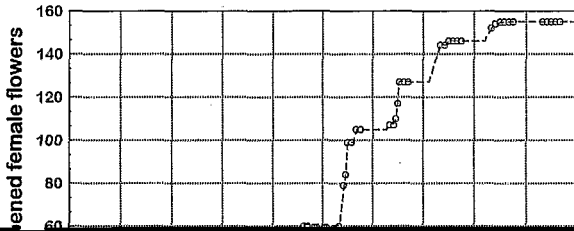
In female cultivars, FBE ranged from DO+31 (cv Sopéré) to DO+54 (cv 1800). Taking into account modes, FBE took place at DO+60/66, except for cv 1800 (DO+83). Considering mode values, FFO occurred at FBE+16/35 which corresponds to DO+80/118. Although FFO was essentially obtained at DO+80/97, no disruption in female flowering was observed between DO+72 and DO+125. On a given plant, when female anthesis started, all flowers opened in 3 to 5 days.

These results showed that in most cases, FBE start

all three types of cottons, namely, top, middle and tail, were

Table 2. Male and female flowering patterns based on days needed for first buds emergence (FBE) and for first flower opening (FFO) counted from sprouting date.  $FBE_m$  and  $FFO_m$  indicate mode values

| Cultivars  | Number of days from sprouting (D0) to first buds emergence (FBE = a) and to first flowers opening (FFO = b) |                      |            |                      |              |                 | Total number of observed plants |
|------------|---|----------------------|------------|----------------------|--------------|-----------------|---------------------------------|
|            | Earlier plants  | First quartil plants | Mode value | Third quartil plants | Later plants | $FFO_m - FBE_m$ |                                 |
|            | a-b   | a-b                  | a-b        | a-b                  | a-b          |                 |                                 |
| Males      |   |                      |            |                      |              |                 |                                 |
| Zrézrou    | 19-40   | 23-59                | 30-65      | 41-62                | 85-115       | 35              | 28                              |
| Frou       | 23-81   | 38-88                | 49-95      | 60-98                | 85-123       | 46              | 33                              |
| Baniakpa   | 35-76   | 47-80                | 56-91      | 65-100               | 85-113       | 35              | 23                              |
| Kroukroupa | 37-69   | 44-76                | 57-88      | 64-99                | 73-105       | 31              | 22                              |
| Yaobadou   | 36-66   | 44-78                | 58-86      | 66-93                | 83-95        | 28              | 20                              |
| Gnan       | 23-58   | 49-79                | 60-88      | 66-97                | 85-116       | 28              | 111                             |
| Sopéré     | 52-92   | 71-100               | 77-105     | 89-120               | 92-125       | 28              | 9                               |
| Females    |   |                      |            |                      |              |                 |                                 |



vars exists even if all crosses will not have the same probability of success.

Not only synchronism in male and female flowering period is necessary. It is also required that flowers open at the same time during the day. Our results showed that male flowers started opening during the morning and peaked at midday as also observed by Akoroda (1983).

opening, it is clear that conditions for hybridization

Hamon, P. & B. Touré, 1990. Characterization of traditional yam varieties belonging to the *Dioscorea cayenensis rotundata* com-