



APPENDICES

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APPENDIX A: Layout and diagram of field experiment

A1: Design of experiment follows randomized complete block design for side veneer grafting

| | | | |
|---------|----|----|----|
| Rep I | A2 | A3 | A1 |
| Rep II | A3 | A1 | A2 |
| Rep III | A1 | A3 | A2 |
| Rep IV | A3 | A1 | A2 |

A1 = 1-year-old seedling

A2 = 2-year-old seedling

A3 = 3-year-old seedling

A2: Diagram of layout for side veneer grafting

| | | |
|---------------------|---------------------|---------------------|
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |

0 = a mango seedling

A3: Design of experiment randomized complete block design for stone grafting

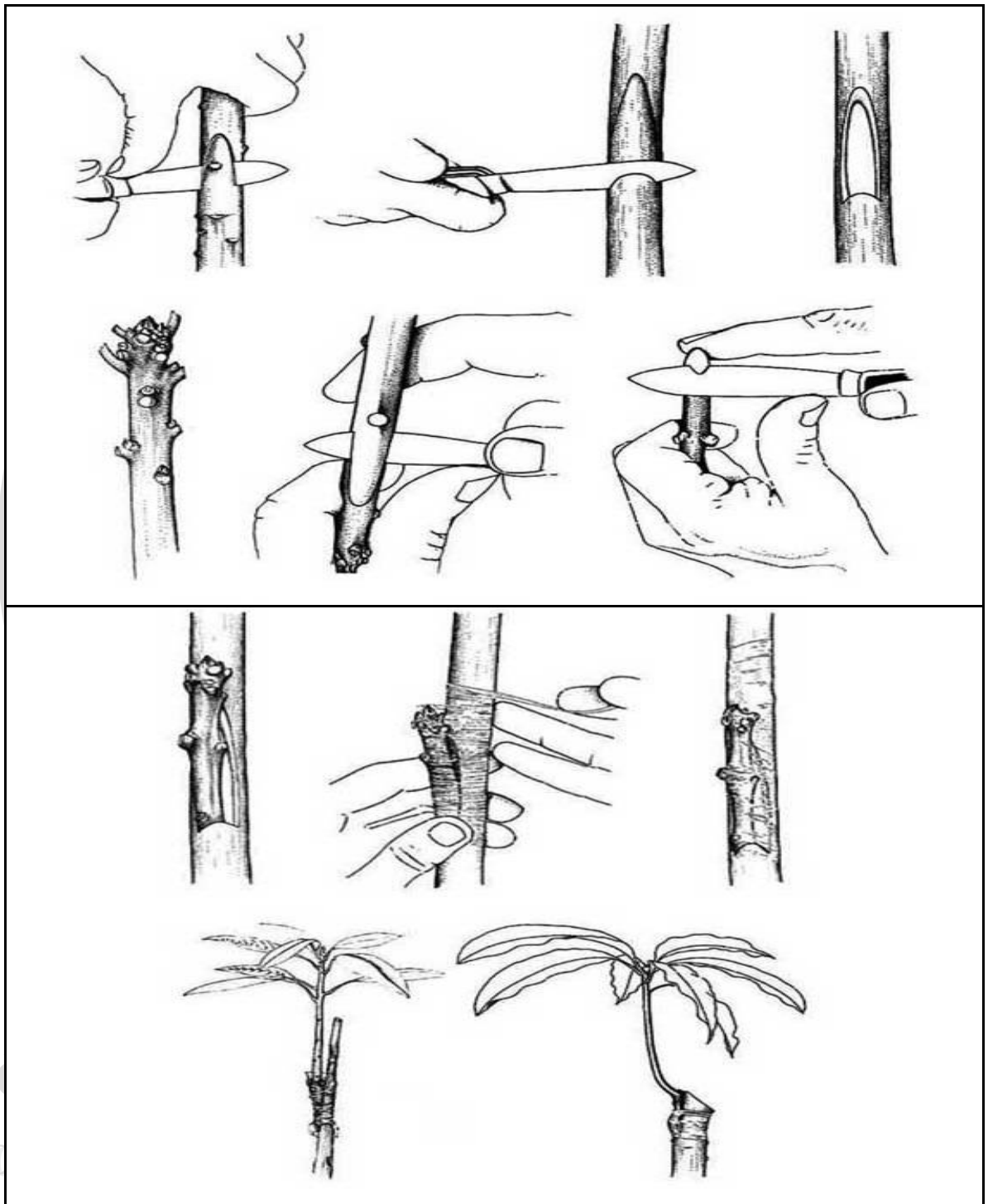
A1 = 5-day-old seedling A2 = 10-day-old seedling
 A3 = 15-day-old seedling A4 = 20-day-old seedling
 A5 = 25-day-old seedling A6 = 30-day-old seedling
 A7 = 35-day-old seedling

| | | | | | |
|---------|----|----|----|----|----|
| Rep I | A4 | A2 | A6 | A1 | A5 |
| Rep II | A7 | A6 | A3 | A1 | A4 |
| Rep III | A6 | A5 | A4 | A7 | A2 |

A4: Diagram of layout for stone grafting

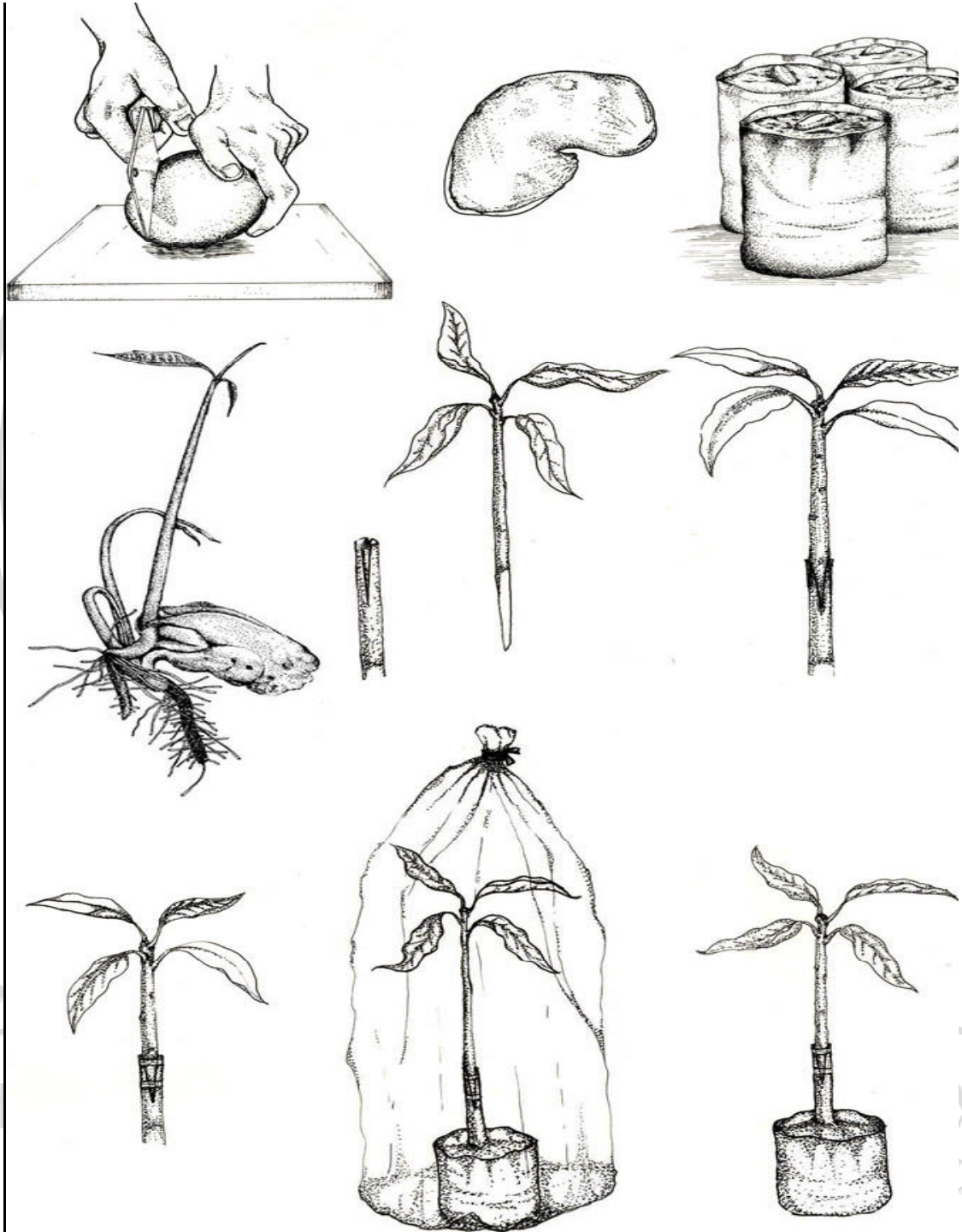
| | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------|
| o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o |
| o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o |
| o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o o o o | o o o o o o o |

o = a mango seedling



A5: Figure 1. Side veneer grafting

Source: Radanachaless *et al.*, 2002



A6: Figure 2. Stone grafting

Source: Radanachaless *et al.*, 2002

APPENDIX B:

B1: Climatic data at the Irrigated Agricultural Research Station during June 2002 to February 2003

| Month | Air temperature (°C) | | | Rainfall (mm) | Rainy day (day) |
|-----------|----------------------|---------|-------|------------------|--------------------|
| | Maximum | Minimum | Mean | | |
| June | 32.8 | 24.3 | 28.6 | 272.6 | 17 |
| July | 31.0 | 24.3 | 27.7 | 99.8 | 16 |
| August | 30.9 | 23.8 | 27.4 | 214.6 | 25 |
| September | 31.1 | 23.3 | 27.2 | 281.2 | 23 |
| October | 31.5 | 21.9 | 26.7 | 84.8 | 9 |
| November | 29.4 | 20.6 | 25.0 | 273.8 | 10 |
| December | 28.8 | 16.1 | 22.4 | 77.6 | 2 |
| January | 29.2 | 15.9 | 22.7 | 24.0 | 5 |
| February | 33.1 | 15.8 | 24.5 | 0 | 0 |
| Total | | | | 1328.42 | 107 |
| Average | 30.86 | 20.69 | 25.78 | | |

B2: Climatic data in the nursery at MCC during the period of planting in the transparent plastic bags from July to October 2002

| Month | Air temperature (°C) | | |
|-----------|----------------------|---------|------|
| | Maximum | Minimum | Mean |
| July | 35.5 | 24.4 | 29.8 |
| August | 34.0 | 24.2 | 29.1 |
| September | 35.5 | 24.5 | 30.0 |
| October | 34.8 | 22.9 | 28.8 |
| Average | 34.9 | 24.0 | 29.5 |



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B3: Correlation (Pearson) between fruit and seed parameters of cv. Tlap-Nak

| Characters | Fruit weight | Fruit length | Fruit width | Fruit thickness | Seed weight | Seed length | Seed width | Seed thickness | Duration of germination | No. of shoots | Stem diameter |
|-------------------------|--------------|--------------|-------------|-----------------|-------------|-------------|------------|----------------|-------------------------|---------------|---------------|
| Fruit weight | 1.0000** | | | | | | | | | | |
| Fruit length | 0.8140** | 1.0000 | | | | | | | | | |
| Fruit width | 0.8653** | 0.6426** | 1.0000 | | | | | | | | |
| Fruit thickness | 0.3805** | 0.5744** | 0.7593** | 1.0000 | | | | | | | |
| Seed weight | 0.6804** | 0.5858** | 0.6416** | 0.5314** | 1.0000 | | | | | | |
| Seed length | 0.7216** | 0.6655** | 0.6668** | 0.53655** | 0.8996** | 1.0000 | | | | | |
| Seed width | 0.2928** | 0.3130** | 0.2529* | 0.12776 | 0.6072** | 0.5445** | 1.0000 | | | | |
| Seed thickness | 0.3223** | 0.1796 | 0.3092** | 0.3084** | 0.5652** | 0.4233** | 0.3371** | 1.0000 | | | |
| Duration of germination | -0.1212 | -0.2350 | -0.17750 | -0.0645 | -0.0802 | -0.1552 | -0.0036 | 0.0756 | 1.0000 | | |
| No. of shoots | 0.1315 | 0.0449 | 0.1249 | 0.1553 | 0.0285 | 0.0610 | 0.0468 | -0.0164 | -0.1462 | 1.0000 | |
| Stem diameter | 0.1795 | 0.2385* | 0.1356 | 0.0900 | 0.2623** | 0.2983** | 0.0406 | -0.0552 | -0.2252 | 0.0920 | 1.0000 |

N = 100, **, * significant at 1%, 5% level

B4: Correlation (Pearson) between survival rate and growth parameters for the old seedling rootstocks

| Character | Survival rate | Duration of flushing | Rootstock diameter | Grafted union diameter | Scion diameter | Scion length | No. of leaves |
|------------------------|---------------|----------------------|--------------------|------------------------|----------------|--------------|---------------|
| Survival rate | 1.0000 | | | | | | |
| Duration of flushing | -0.4289 | 1.0000 | | | | | |
| Rootstock diameter | 0.2599 | -0.2099 | 1.0000 | | | | |
| Grafted union diameter | 0.2085 | -0.2391 | 0.9545** | 1.0000 | | | |
| Scion diameter | 0.5200 | -0.4123 | 0.8894** | 0.8733** | 1.0000 | | |
| Scion length | 0.4940 | -0.4361 | 0.8663** | 0.7881** | 0.9069** | 1.0000 | |
| Number of leaves | 0.4315 | -0.0939 | 0.3478 | 0.3284 | 0.4254 | 0.5549 | 1.000 |

N = 21, ** significant at 1% level

B5: Correlation (Pearson) between survival and growth parameters for the young seedling rootstocks

| Character | Duration of flushing | Survival rate | Rootstock diameter | Grafted union diameter | Scion diameter | Scion length | No. of leaves |
|------------------------|----------------------|---------------|--------------------|------------------------|----------------|--------------|---------------|
| Duration of flushing | 1.0000 | | | | | | |
| Survival rate | 0.0607 | 1.0000 | | | | | |
| Rootstock diameter | -0.2789 | 0.2521 | 1.0000 | | | | |
| Grafted union diameter | -0.1990 | 0.2541 | 0.8934** | 1.0000 | | | |
| Scion diameter | 0.0497 | 0.2368 | 0.6991** | 0.8263** | 1.0000 | | |
| Scion length | -0.3481 | 0.1485 | 0.7739** | 0.8095** | 0.7730** | 1.0000 | |
| Number of leaves | -0.4310 | -0.0299 | 0.5652* | 0.6848** | 0.6252** | 0.7183** | 1.000 |

N = 21, **, * significant at 1%, 5% level

APPENDIX C:

**C1: Questionnaire for household survey on mango production and propagation in
Luang Prabang Province, Lao PDR**

Section 1: General information

1. Name and surname (Mr/Mrs/Miss).....age.....years
Ethnic group: Lao-Loum Lao-Theung Lao-Soung
2. Name of village.....Sub-district.....District.....
Province.....
3. Educational level
Primary school secondary school high school
4. How many persons are there in your family?.....people
How many children have been born?.....and how many of them alive?.....

| | Name | Sex | Age | Role in the family | Educational level | Occupation |
|-----|------|-----|-----|--------------------|-------------------|------------|
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |

5. How many labors are there in you family..... how many male:.....and female:....

Section 2: Land use and cropping pattern

1. Total land areaha, of which:

Own land.....ha

Tenure land.....ha

Others (specify).....ha

2.Cropping calendar (monocrop, intercrop)

| Crops | J | F | M | A | M | J | J | A | S | O | N | D |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |

4. Description of area, landscape position, number of cropping pattern and crop components of important cropping pattern by parcel

| Parcel No | Area (ha) | Landscape position | Major cropping pattern planted | Crop components | Varieties | Planting month | Harvesting month |
|-----------|-----------|--------------------|--------------------------------|-----------------|-----------|----------------|------------------|
| | | | | | | | |
| | | | | | | | |
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Section 3: Information of mango growing

A. General information of mango



1. Area planted (ha).....location.....
2. Varieties.....
3. Age of tree (years).....year of planting 199.....
4. What are the crops growing in your village.....

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5. What are the fruit trees growing in your village.....
.....

6. Are there any mango orchards around your orchard
No yes, but little yes, mostly

7. Please, indicate where majority of farmers grown mango
Village.....subdistrict.....district.....province.....
Village.....subdistrict.....district.....province.....
Village.....subdistrict.....district.....province.....
Village.....subdistrict.....district.....province.....

8. What are the important fruit trees that generate income in your village?
 mango longan tamarind jackfruit pomelo
orange others (specify).....

9. The reasons that you want to grow mango
Drought (area)
New alternative for reducing the risks from previous crop
Low productivity of previous crop
Supplementary income
For fruit processing
Others (specify).....

10. What kinds of the processing product of mango did you know ?
.....

11. What kinds of the processing products of mango did you process by yourselves ?
.....

12. Did you receive any suggestions and recommendations from government officers or agencies?
Yes (specify).....times/year.....
No

B. Farmers' practices

1. Forms of mango production

Year (starting) of planting from.....area.....ha

Compact systems (mango only), area.....ha, number of trees.....

Compact systems (mixed with another fruit trees), area.....ha,
number of trees.....

Scattered system, area.....ha, number of trees.....

2. How many varieties of mango did you grow?

1 variety, name.....age.....years

More than 1 variety, namely: 1.....age.....years

2.....age.....years

3.....age.....years

3. Planting months.....

4. Planting method

4.1 Spacing between rows and between trees(m x m).....

4.2 Size of the whole (cm x cm x cm).....

5. How did you find out the good varieties?

From where

Planting rootstock then making scions (top working)

Buying grafting materials, from where.....

Others (specify).....

- How do you choose good varieties?

.....
.....

6. How many mango trees that you have planted.....trees

7. Area characteristics of your mango orchard

Has water available year-round rainfed flat land hill slope

Others.....

8. To which period of taking of care of your mango do you pay more attention?

.....

9. Did you apply fertilizers?

Yes no

If not, why.....

9.1 Organic fertilizer applicationtimes/year

1st application: when.....

Kind.....amount.....(Kg/tree/year)

Unit cost.....(Kip/kg)

2nd application: when.....

Kind.....amount.....(Kg/tree/year)

Unit cost.....(Kip/kg)

3rd application: when.....

Kind.....amount.....(Kg/tree/year)

Unit cost.....(Kip/kg)

Was organic fertilizer used enough?.....

Yes no

If not, why

(Specify, if others).....

9.2 Chemical fertilizer application.....times/year

1st application: when.....

Kind.....amount.....(Kg/tree/year)

Unit cost.....(Kip/kg)

2nd application: when.....

Kind.....amount.....(Kg/tree/year)

Unit cost.....(Kip/kg)

3rd application: when.....

Kind.....amount.....(Kg/tree/year)

Unit cost.....Kip/kg)

Was chemical fertilizer used enough?

Yes no

If not, why
(Specify, if others).....

10. Pest problems

10.1 Major pest insect problems

1).....2).....3).....

10.2 Major disease problems

1).....2).....3).....

10.3 Major weed problems

1).....2).....3).....

11. Other problems (specify).....
.....

12. Did you use any pest controls?

Yes no, why.....

13. Insecticide application.....times/year

1st application: when.....

Kind..... amount.....(Kg/ha/year)

Unit cost.....(Kip/kg or liter)

2nd application: when.....

Kind..... amount.....(Kg/ha/year)

Unit cost.....(Kip/kg or liter)

3rd application: when.....

Kind..... amount.....(Kg/ha/year)

Unit cost.....(Kip/kg or liter)

14. Fungicide application.....times/year

1st application: when.....

Kind..... amount.....(Kg/ha/year)

Unit cost.....(Kip/kg or liter)

2nd application: when.....
 Kind..... amount.....(Kg/ha/year)
 Unit cost..... (Kip/kg or liter)

3rd application: when.....
 Kind..... amount.....(Kg/ha/year)
 Unit cost..... (Kip/kg or liter)

15. How do you control weeds in your orchard?

Use herbicides plowing grass-cutting machine
 Others (specify).....
 Cover crop (specify the name).....

16. Herbicide application.....times/year

1st application: when.....
 Kind..... amount.....(Kg/ha/year)
 Unit cost..... (Kip/kg or liter)

2nd application: when.....
 Kind..... amount.....(Kg/ha/year)
 Unit cost..... (Kip/kg or liter)

3rd application: when.....
 Kind..... amount.....(Kg/ha/year)
 Unit cost.....(Kip/kg or liter)

17. Did you prune and make shape

Yes, when (in what months).....
 No, why.....

18. Do your mango trees produce fruits every year (in the past 5 years)

Yes, every year not every year

Section 4. Harvesting and marketing

1. How many times do you harvest your mango fruits.....times/ year
2. Duration of harvest (indicate first and second harvest)

1 - 15 April 16 - 30 April

1 - 15 May 16 - 30 May

1 - 15 June 16 - 30 June

1 - 15 July 16 - 30 July

Others.....

3. The price of fruits in that time (from question 2)

< 500 Kip/kg 500 - 1000 Kip/kg

1100 - 1500 Kip/kg 1600 - 200 Kip/kg

2100 - 2500 Kip/kg 2600 - 3000 Kip/kg

> 3000 Kip/kg

4. Which method of harvest did you use?

.....
.....

5. Did you have any methods in keeping fresh mango fruits?

Yes.....

No

6. The size (weight) of your mango fruits.....fruits/kg

7. Are there the same size of your mango fruits

Yes, because.....

No, because.....

8. How do you improve your production systems in order to get high price?

Quality of fruits marketing management

Quantity of products processing organizing farmers' group

9. Which year did you get a good production of mango, in the past 10 years?

Year..... price.....Kip/kg

10. To whom did you sell your mango fruits?

- Local middleman (from where).....

- Processing industries (name).....

- Others (specify).....

Section 5. Information of mango propagation

1. Did you have any methods of mango propagation?

Yes no, why.....

2. Which methods of mango propagation that you used to use?

Using seeds vegetative propagation

3. Which methods of vegetative propagation that you used? And percent of successfulness

Inarching or approach grafting.....%, budding% , Grafting.....%
top working.....%

4. From whom did you learn or get knowledge and skills for propagation?

Agricultural officers (training) your friends your relatives

Neighboring farmers by yourselves

Others (specify).....

5. How do you select your rootstocks for propagation?

.....
.....
.....

6. How do you manage your rootstocks seedlings? Please explain step by step?

a). Selection of seeds and fruits.

b). Seed treatment.....

c). Establishment.....

d). Soil media composition.....

e). Planting.....

.....

f). Watering.....

g). The best age of rootstocks.....

h). Other management.....

7. Which varieties of mango that you use for rootstocks? please give reason (take a picture of trees)

8. Sources of seeds for rootstocks (from where?)

9. How do you select the good scions for propagation?

10. From which varieties that you used as good scions for propagation? Please indicate the popular one

11. From which sources did you get the good scions?

10. How do you prepare your scions before you make grafting?

11. Please explain the methods that you like to use for vegetative propagation/ and you have made successfully

Method 1

1:.....

a). Rootstock preparation

.....
.....
.....

b). Scion preparation

.....
.....

c). Grafting

.....
.....

d). Suitable time for grafting.....

e). Duration of grafted union.....

f). Other management after grafting

.....
.....
.....

Method 2:

a). Rootstock preparation.....

b). Scion preparation

.....
.....

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c). Grafting

.....
.....
.....

d). Suitable time for grafting.....

e). Duration of graft union.....

f). Other management after grafting

.....
.....
.....

14. Did you have your own mother trees?

Yes, name of variety..... area.....ha, number of trees.....

No, where and whom did you get from.....

.....

15. Please indicate the best time for propagation (please give the reason).....

.....

16. How many grafting materials do you produce in each year?.....

17. Where do you sell your grafting materials?.....

.....

18. At what prices did you sell your grafting materials?.....kip/tree

19. How many grafting materials can you sell in each year?.....trees

20. How much can you earn from selling your grafting materials?.....kip

21. Please indicate the group of people who come to buy your grafting materials?

.....

22. What are the varieties of your grafting materials that people like to buy for growing?

.....

23. What are the equipment that are necessary to use for propagation? (take a picture –

indigenous knowledge)

- 1).....2).....3).....
 4).....5).....6).....
 7).....8).....9).....

24. Did you have any methods for stimulating scions after grafting?

Cutting a bark of rootstocks cutting rootstocks using hormone

25. How do you manage your budded scions?

.....

26. How do you manage your grafting materials after separation from mother trees until selling or planting? (for inarching)

.....

27. Did you apply chemical fertilizers for your grafting materials?

When.....

Kind.....amount.....g/tree, cost unit.....kip/kg

28. Pest problems of grafting materials in nursery

- 1) Major insect pest problems.....
- 2) Major disease problems.....
- 3) Major weed problems.....

29. Other problems (specify).....

30. Did you use any pest control for protecting your grafting materials?

Yes No

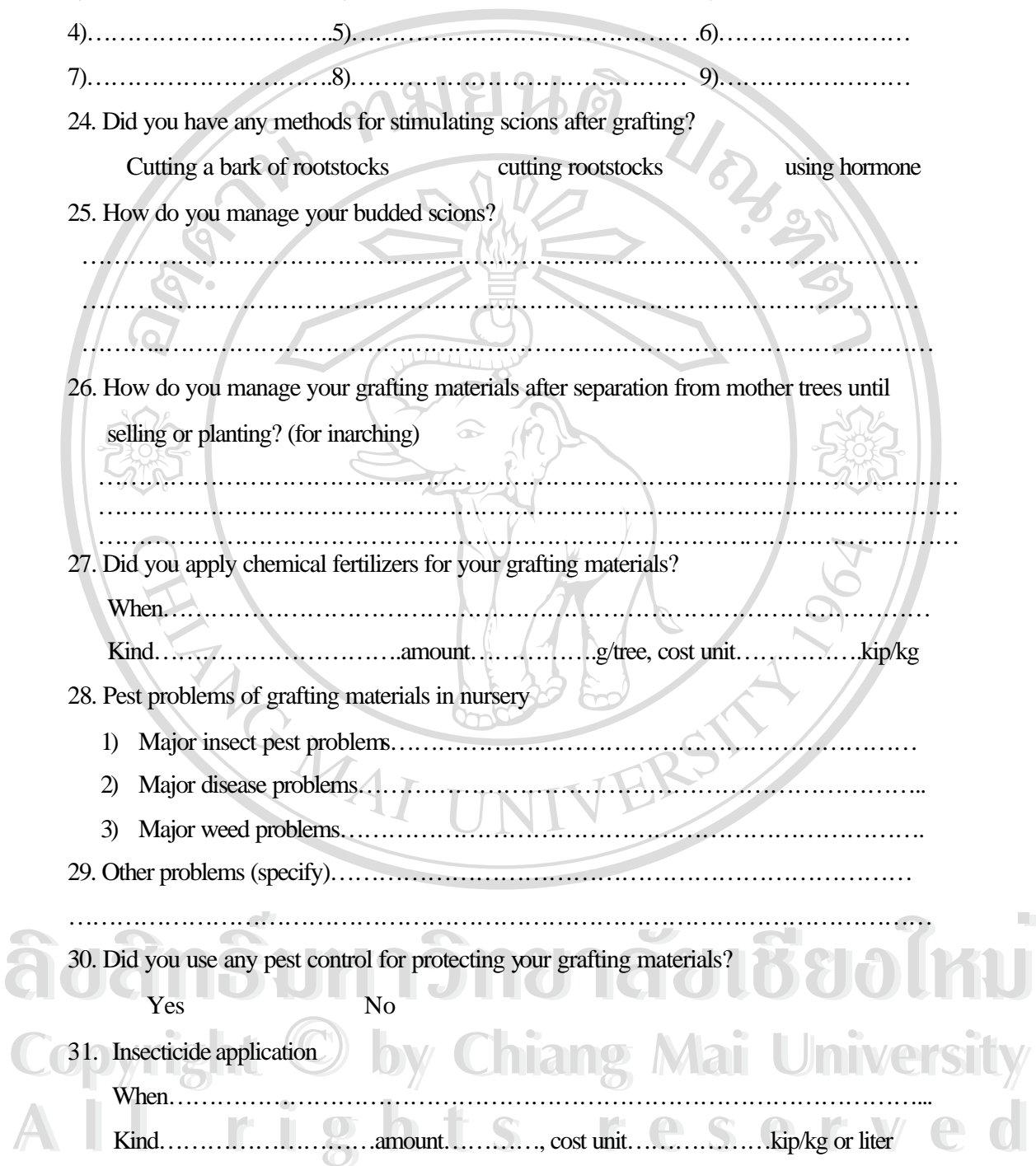
31. Insecticide application

When.....

Kind.....amount....., cost unit.....kip/kg or liter

32. Fungicide application

When.....



Kind.....amount....., cost unit.....kip/kg or liter

33. Herbicide application

When.....

Kind.....amount....., cost unit.....kip/kg or liter

Section 6. Economic information

1. Production of Mango

1. Total production (specify unit).....

2. Amount sold.....

3. Amount for household consumption.....

4. Price per unit (Kip/kg).....

Total:.....Kip

2. Expenses on mango production

1. Irrigation fee (Kip).....

2. Land rent (Kip).....

3. Hired labor (Kip).....

a. Land preparation.....

b. Planting.....

c. Weeding.....

d. Harvesting.....

e. Others.....

4. Equipment.....

Total.....Kip

3. Production of grafting materials

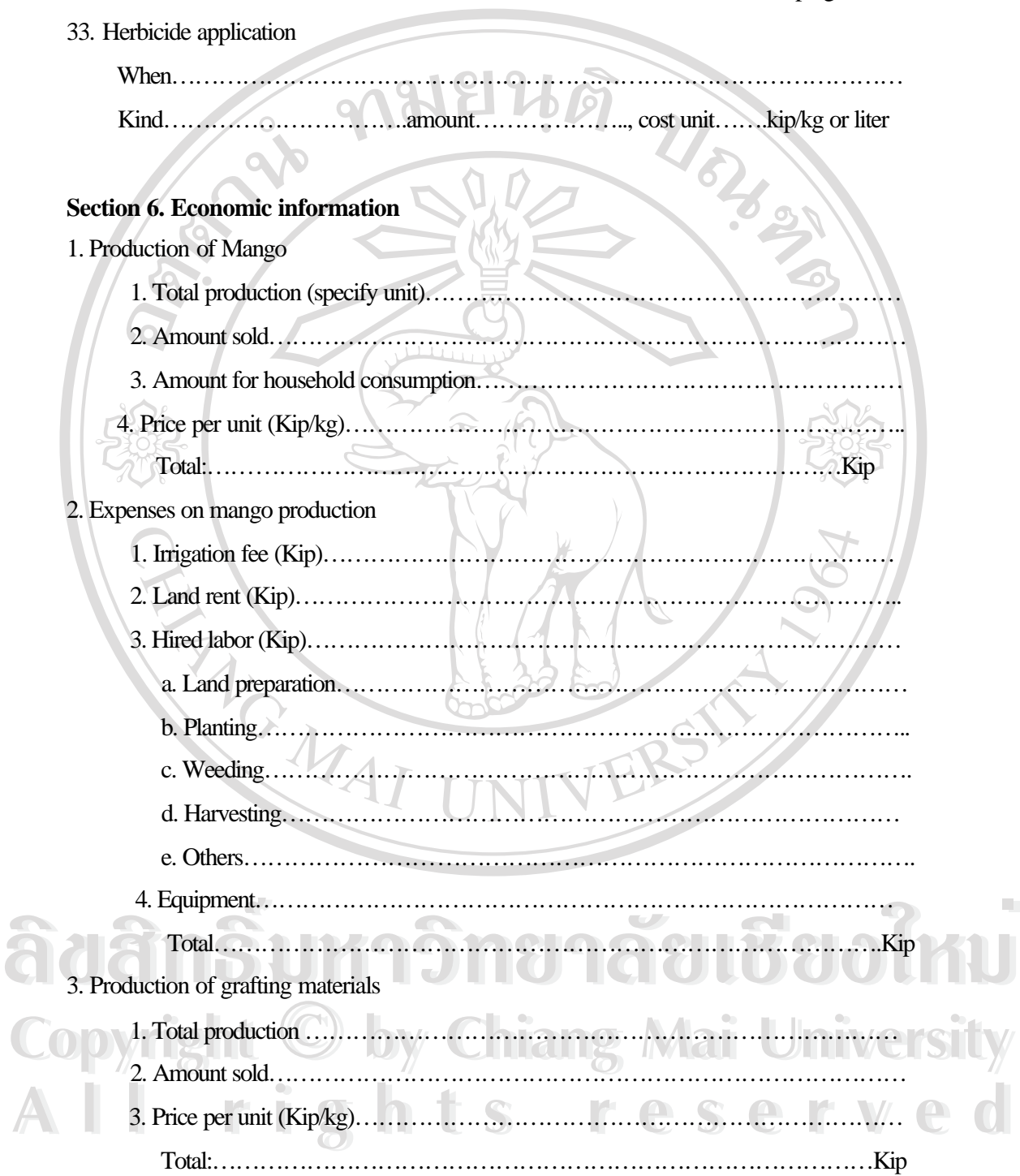
1. Total production.....

2. Amount sold.....

3. Price per unit (Kip/kg).....

Total:.....Kip

4. Expenses on grafting material production



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1. Hired labor (Kip).....

 a.

 b.

 c.

2. Equipment/materials.....

 Total.....Kip

5. Credit utilization of household

Do you borrow money to purchase inputs? yes no

If yes indicate:

 Source.....

 Amount (Kip).....

 Rate of interest (Kip/annum).....

6. Household expenditures

What are the approximate annual household expenditures on the following items?

 a. Foods.....Kip

 b. Education.....Kip

 c. Health.....Kip

 d. Clothing.....Kip

 e. Miscellaneous.....Kip

 Total.....Kip

7 Household annual income

 a. From crops.....Kip

 b. From fruit trees.....Kip

 c. From grafting materials.....kip

 d. From animals.....Kip

 e. Off-farm income.....Kip

 Total.....Kip

8. Other comments.....

**C2: Questionnaire for assessing feasibility of grafting techniques by the farmers in
Luang Prabang province**

Section I. General household information

1. Name and surname (Mr/Mrs/Miss).....age.....years
Ethnic group: Lao Loum Lao Theung Lao Soung
2. Name of village.....Subdistrict.....District.....Province.....
3. Educational level
 Primary school Secondary school High school
4. How many persons are there in your family?.....of whom women.....persons
5. How many labors are there in you family..... How many male:.....and
 female:.....

Section II. General information of mango growing in brief

1. Total Area planted (ha).....
2. Location flat land low slope high slope
3. Assessing to water irrigated rainfed
4. Number of mango orchards.....number of mango trees.....
5. How many varieties of mango did you grow?
 One variety, name.....age.....years
 More than 1 variety, namely:
 1.....age.....years, year of growing 199.....
 2.....age.....years, year of growing 199.....
 3.....age.....years, year of growing 199.....
 4.....age.....years, year of growing 199.....
 5.....age.....years, year of growing 199.....
6. What are the reasons that you want to grow mango?
 Drought (area)
 New alternative for reducing the risks from previous crop

Others (specify).....

4. Which variety did you used for rootstocks? Please give reasons ?

.....
.....

5. What are the tools that you used for grafting? Please specify?

1).....2).....3).....

4).....5).....6).....

6. From which varieties did you used as good scions for propagation? Why? Please indicate the popular one.....

.....

7. How do you think what is the most suitable time for grafting.....

8. Please indicate the best time for propagation.....

.....

9. Did you have your own good mother tree?

Yes, name of variety....., age.....years.

If, you have more than 1 varieties namely 1)....., age.....years.

2)....., age.....years.

3)....., age.....years.

4).....,age.....years.

No, where and whom did you get from.....

.....

.....

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Section IV. Feasibility assessment of grafting techniques

1. Have you ever attended training course on the techniques of plant propagation before?

Yes.....times, when.....

Supported by which organization

Comparing with your last training, this training is:

Better, why.....

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Bad, why.....

The same,

No, never

2. If compared grafting with seed propagation, which method has more advantages?

Why?

Seeds, because.....

Grafting, because.....

3. How do you think, this training is useful for you?

Unuseful, why.....

Less useful, why.....

Useful, why.....

4. Through discussion and demonstration, how deep did you understand?

Not understood, why.....

Partly understood

Fairly understood

Well understood

5. Can you apply these techniques in practice in your fields?

No, can not

May be, can

Sure, can

6. Are you confident to apply these techniques in your fields?

| Techniques | Yes | No |
|--|-----|----|
| Technique I: Side veneer grafting on old seedling rootstocks | | |
| Technique II: Stone grafting on young seedling rootstocks | | |

7. Please consider comfortability of operating and put the mark "X" in the cells where it is appropriate

| Techniques | More comfortable | Comfortable | Not comfortable |
|--|------------------|-------------|-----------------|
| Technique I: Side veneer grafting on old seedling rootstocks | | | |
| Technique II: Stone grafting on young seedling rootstocks | | | |

8. Please consider time consuming by using the score below and put the mark "X" in the cells where it is appropriate for each technique.

Long time >1 year, medium time = 6 – 12 months and short time < 6 months

| Techniques | Take a long time | Take medium time | Take a short time |
|--|------------------|------------------|-------------------|
| Technique I: Side veneer grafting on old seedling rootstocks | | | |
| Technique II: Stone grafting on young seedling rootstocks | | | |

9. Please consider economic feasibility and put the mark "X" in the cells where it is appropriate for each technique

| Techniques | High | Medium | Low | Very low |
|--|------|--------|-----|----------|
| Technique I: Side veneer grafting on old seedling rootstocks | | | | |
| Technique II: Stone grafting on young seedling rootstocks | | | | |

10. Please consider which technique do you prefer and put the mark "X" in the cells where it is appropriate?

| | More | Preferable | Less | Not |
|--|------|------------|------|-----|
| | | | | |

| | | | | |
|---|------------|--|------------|------------|
| Techniques | preferable | | preferable | preferable |
| Technique I: Side veneer grafting on old seedling rootstocks | | | | |
| Technique II: Stone grafting on young seedling rootstocks | | | | |

11. Based on all aspects of feasibility (scion survival rate, time consuming, comfortability and economic feasibility) please consider which technique is appropriate and acceptable to use in practice by putting the mark 'X' in the cells where it is appropriate for each technique.

| Techniques | Appropriate and acceptable | Inappropriate and unacceptable |
|---|----------------------------|--------------------------------|
| Technique I: Side veneer grafting on old seedling rootstocks | | |
| Technique II: Stone grafting on young seedling rootstocks | | |

12. From question No.11 above, please give the reasons

Appropriate and acceptable, because.....

Inappropriate, because.....

13. If you were not confident to do, what would you need or what should be improved?

More practice by yourselves

learn from other

Need more training

need tools for propagation

14. From question No.13 above, please put the figure from 1 to 4 in the blanks by ordering the level of importance as follows:

1- very important, 2- important , 3- less important, and 4- not important

| | |
|-----------------------------|--|
| More practice by yourselves | |
| learn from other | |
| Need more training | |
| need tools for propagation | |

15. Will you have any plans to do (what will you do) after this training?

.....
.....
.....

16. Can you transfer these techniques to another farmers in your village?

Can, because.....

Can not, because.....

17. What would you request farmers, local authority, agricultural officers, extensionists, and agricultural extension bank etc. to promote mango-farming systems?

.....
.....
.....
.....

18. Other comments

.....
.....
.....

APPENDIX D: Analysis of variance

D1: Analysis of variance for percentage of survival of Kaew scions on old Tlab-Nak seedling rootstocks at 20 DAG (Table 16)

| SOURCE | DF | SS | MS | F | P |
|---------|----|----------|---------|------|--------|
| REP (A) | 3 | 91.66677 | 30.5556 | 1.00 | 0.4547 |
| TRT (B) | 2 | 416.667 | 208.333 | 6.82 | 0.0285 |
| A*B | 6 | 183.333 | 30.5556 | | |
| TOTAL | 11 | 691.667 | | | |

D2: Analysis of variance for percentage of survival of Kaew scions on old Tlab-Nak seedling rootstocks at 60 DAG (Table 16)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 491.667 | 163.889 | 0.55 | 0.6656 |
| TRT (B) | 2 | 2150.00 | 1075.00 | 3.62 | 0.0932 |
| A*B | 6 | 1783.33 | 297.222 | | |
| TOTAL | 11 | 4425.00 | | | |

D3: Analysis of variance for duration of first flushing of Kaew scions on old Tlab-Nak seedling rootstocks (Table 17)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 61.8574 | 20.6191 | 0.28 | 0.8394 |
| TRT (B) | 2 | 135.493 | 67.7465 | 0.91 | 0.4501 |
| A*B | 6 | 444.469 | 74.0781 | | |
| TOTAL | 11 | 641.819 | | | |

D4: Analysis of variance for rootstock diameter growth rate of old Tlab-Nak seedling rootstocks at 60 DAG (Figure 11)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 10.6831 | 3.56103 | 1.13 | 0.4105 |
| TRT (B) | 2 | 11.6464 | 5.82318 | 1.84 | 0.2380 |
| A*B | 6 | 18.9804 | 3.16340 | | |
| TOTAL | 11 | 41.3098 | | | |

D5: Analysis of variance for rootstock diameter growth rate of old Tlab-Nak seedling rootstocks at 90 DAG (Figure 11)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 71.7815 | 23.9272 | 0.33 | 0.8057 |
| TRT (B) | 2 | 160.729 | 80.3644 | 1.10 | 0.3911 |
| A*B | 6 | 437.457 | 72.9096 | | |
| TOTAL | 11 | 669.968 | | | |

D6: Analysis of variance for rootstock diameter growth rate of old Tlab-Nak seedling rootstocks at 120 DAG (Figure 11)

| SOURCE | DF | SS | MS | F | P |
|---------|----|----------|---------|------|--------|
| REP (A) | 3 | 120.443 | 40.1478 | 0.35 | 0.7895 |
| TRT (B) | 2 | 153.139 | 76.5693 | 0.67 | 0.5453 |
| A*B | 6 | 683.685 | 113.948 | | |
| TOTAL | 11 | 9577.267 | | | |

D7: Analysis of variance for rootstock diameter growth rate of old Tlab-Nak seedling rootstocks at 150 DAG (Figure 11)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 77.8998 | 25.9666 | 0.28 | 0.8394 |
| TRT (B) | 2 | 373.375 | 186.687 | 2.00 | 0.2159 |
| A*B | 6 | 559.944 | 93.3239 | | |
| TOTAL | 11 | 1011.22 | | | |

D8: Analysis of variance for grafted union diameter growth rate of old Tlab-Nak seedling rootstocks at 60 DAG (Figure 12)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 0.11309 | 0.03770 | 0.08 | 0.9697 |
| TRT (B) | 2 | 1.08902 | 0.54451 | 1.12 | 0.3853 |
| A*B | 6 | 2.90978 | 0.48496 | | |
| TOTAL | 11 | 4.11189 | | | |

D9: Analysis of variance for grafted union diameter growth rate of old Tlab-Nak seedling rootstocks at 90 DAG (Figure 12)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 148.453 | 49.4844 | 1.43 | 0.3242 |
| TRT (B) | 2 | 417.494 | 208.747 | 6.02 | 0.0367 |
| A*B | 6 | 207.897 | 34.6495 | | |
| TOTAL | 11 | 773.845 | | | |

D10: Analysis of variance for grafted union diameter growth rate of old Tlab-Nak seedling rootstocks at 120 DAG (Figure 12)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 88.1065 | 29.3688 | 0.95 | 0.4744 |
| TRT (B) | 2 | 680.298 | 340.149 | 10.99 | 0.0099 |
| A*B | 6 | 185.747 | 30.9578 | | |
| TOTAL | 11 | 954.151 | | | |

D11: Analysis of variance for grafted union diameter growth rate of old Tlab-Nak

seedling rootstocks at 150 DAG (Figure 12)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 151.008 | 50.3361 | 1.79 | 0.2486 |
| TRT (B) | 2 | 1093.47 | 546.735 | 19.47 | 0.0024 |
| A*B | 6 | 168.486 | 28.0810 | | |
| TOTAL | 11 | 1412.96 | | | |

D12: Analysis of variance for diameter of Kaew scions on old Tlab-Nak seedling rootstocks at 60 DAG (Figure 13)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 0.00843 | 0.00281 | 0.89 | 0.5068 |
| TRT (B) | 2 | 0.06576 | 0.03288 | 10.42 | 0.0165 |
| A*B | 6 | 0.01578 | 0.00316 | | |
| TOTAL | 11 | 0.08997 | | | |

D13: Analysis of variance for diameter of Kaew scions on old Tlab-Nak seedling rootstocks at 90 DAG (Figure 13)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|-----------|-------|--------|
| REP (A) | 3 | 0.00676 | 0.00225 | 2.30 | 0.1768 |
| TRT (B) | 2 | 0.05360 | 0.02680 | 27.41 | 0.0010 |
| A*B | 6 | 0.00587 | 9.778E-04 | | |
| TOTAL | 11 | 0.06622 | | | |

D14: Analysis of variance for diameter of Kaew scions on old Tlab-Nak seedling rootstocks at 120 DAG (Figure 13)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|-----------|-------|--------|
| REP (A) | 3 | 0.00170 | 5.667E-04 | 0.38 | 0.7686 |
| TRT (B) | 2 | 0.07662 | 0.03831 | 25.97 | 0.0011 |
| A*B | 6 | 0.00885 | 0.00148 | | |
| TOTAL | 11 | 0.08717 | | | |

D15: Analysis of variance for diameter of Kaew scions on old Tlab-Nak seedling rootstocks at 150 DAG (Figure 13)

| SOURCE | DF | SS | MS | F | P |
|---------|----|-----------|-----------|-------|--------|
| REP (A) | 3 | 9.167E-05 | 3.056E-05 | 0.02 | 0.9964 |
| TRT (B) | 2 | 0.09487 | 0.04743 | 27.54 | 0.0009 |
| A*B | 6 | 0.01033 | 0.00172 | | |
| TOTAL | 11 | 0.10529 | | | |

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D16: Analysis of variance for Kaew scion length on old Tlab-Nak seedling rootstocks at 60 DAG (Figure 14)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 4.57465 | 1.52488 | 0.14 | 0.9335 |
| TRT (B) | 2 | 187.205 | 93.6024 | 8.43 | 0.0250 |
| A*B | 6 | 55.5168 | 11.1034 | | |
| TOTAL | 11 | 247.296 | | | |

D17: Analysis of variance for Kaew scion length on old Tlab-Nak seedling rootstocks at 90 DAG (Figure 14)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 33.3671 | 11.1224 | 3.38 | 0.0954 |
| TRT (B) | 2 | 138.802 | 69.4009 | 21.08 | 0.0019 |
| A*B | 6 | 19.7518 | 3.29196 | | |
| TOTAL | 11 | 191.921 | | | |

D18: Analysis of variance for Kaew scion length on old Tlab-Nak seedling rootstocks at 120 DAG (Figure 14)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 36.3685 | 12.1228 | 0.58 | 0.6512 |
| TRT (B) | 2 | 611.431 | 305.715 | 14.55 | 0.0050 |
| A*B | 6 | 126.096 | 21.0161 | | |
| TOTAL | 11 | 773.895 | | | |

D19: Analysis of variance for Kaew scion length on old Tlab-Nak seedling rootstocks at 150 DAG (Figure 14)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 22.7655 | 7.58850 | 0.32 | 0.8134 |
| TRT (B) | 2 | 615.803 | 307.901 | 12.85 | 0.0068 |
| A*B | 6 | 143.795 | 23.9659 | | |
| TOTAL | 11 | 782.364 | | | |

D20: Analysis of variance for number of leaves of Kaew scions on old Tlab-Nak seedling rootstocks at 60 DAG (Figure 15)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|-------|--------|
| REP (A) | 3 | 1.59569 | 0.53190 | 0.55 | 0.6686 |
| TRT (B) | 2 | 35.4573 | 17.7286 | 18.40 | 0.0049 |
| A*B | 6 | 4.81673 | 0.96335 | | |
| TOTAL | 11 | 41.8697 | | | |

D21: Analysis of variance for number of leaves of Kaew scions on old Tlab-Nak seedling rootstocks at 90 DAG (Figure 15)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 12.8868 | 4.29561 | 1.72 | 0.2620 |
| TRT (B) | 2 | 31.0597 | 15.5298 | 6.21 | 0.0345 |
| A*B | 6 | 14.9995 | 2.49992 | | |
| TOTAL | 11 | 58.9460 | | | |

D22: Analysis of variance for number of leaves of Kaew scions on old Tlab-Nak seedling rootstocks at 120 DAG (Figure 15)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 13.7098 | 4.56993 | 0.41 | 0.7532 |
| TRT (B) | 2 | 95.1509 | 47.5754 | 4.25 | 0.0709 |
| A*B | 6 | 67.2106 | 11.2018 | | |
| TOTAL | 11 | 176.071 | | | |

D23: Analysis of variance for number of leaves of Kaew scions on old Tlab-Nak seedling rootstocks at 150 DAG (Figure 15)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 3 | 90.3559 | 30.1186 | 5.96 | 0.0312 |
| TRT (B) | 2 | 29.6458 | 14.8229 | 2.94 | 0.1291 |
| A*B | 6 | 30.2972 | 5.04953 | | |
| TOTAL | 11 | 150.299 | | | |

D24: Analysis of variance for percentage of survival of Kaew scions on young Tlab-Nak seedling rootstocks at 20 DAG (Table 22)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 1289.69 | 644.845 | 2.47 | 0.1261 |
| TRT (B) | 6 | 3587.11 | 597.851 | 2.29 | 0.1043 |
| A*B | 12 | 3129.07 | 260.756 | | |
| TOTAL | 20 | 8005.87 | | | |

D25: Analysis of variance for percentage of survival of Kaew scions on young Tlab-Nak seedling rootstocks at 60 DAG (Table 22)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 546.525 | 273.262 | 1.73 | 0.2267 |
| TRT (B) | 6 | 4148.55 | 691.425 | 4.37 | 0.0200 |
| A*B | 12 | 1581.36 | 158.136 | | |
| TOTAL | 20 | 6276.43 | | | |

D26: Analysis of variance for duration of first flushing of Kaew scions on young Tlab-Nak seedling rootstocks (Table 23)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 17.4482 | 8.72411 | 0.02 | 0.9819 |
| TRT (B) | 5 | 4656.66 | 931.333 | 1.95 | 0.1720 |
| A*B | 10 | 4768.02 | 476.802 | | |
| TOTAL | 17 | 9442.13 | | | |

D27: Analysis of variance for rootstock diameter growth rate of young Tlab-Nak seedling rootstocks at 60 DAG (Figure 16)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 493.326 | 246.663 | 3.39 | 0.0753 |
| TRT (B) | 5 | 2394.91 | 478.982 | 6.58 | 0.0059 |
| A*B | 10 | 728.309 | 72.8309 | | |
| TOTAL | 17 | 3616.54 | | | |

D28: Analysis of variance for rootstock diameter growth rate of young Tlab-Nak seedling rootstocks at 90 DAG (Figure 16)

| SOURCE | DF | SS | MS | F | P |
|---------|----|----------|---------|------|--------|
| REP (A) | 2 | 1570.977 | 785.483 | 6.68 | 0.0143 |
| TRT (B) | 5 | 3246.44 | 649.288 | 5.53 | 0.0107 |
| A*B | 10 | 1175.10 | 117.510 | | |
| TOTAL | 17 | 5992.51 | | | |

D29: Analysis of variance for rootstock diameter growth rate of young Tlab-Nak seedling rootstocks at 120 DAG (Figure 16)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 3573.19 | 1786.59 | 6.88 | 0.0132 |
| TRT (B) | 5 | 5093.61 | 1018.72 | 3.92 | 0.0315 |
| A*B | 10 | 2598.26 | 259.826 | | |
| TOTAL | 17 | 11265.1 | | | |

D30: Analysis of variance for rootstock diameter growth rate of young Tlab-Nak seedling rootstocks at 150 DAG (Figure 16)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 4947.23 | 2473.62 | 6.40 | 0.0162 |
| TRT (B) | 5 | 6795.97 | 1359.19 | 3.52 | 0.0429 |
| A*B | 10 | 3862.96 | 386.296 | | |
| TOTAL | 17 | 15606.2 | | | |

D31: Analysis of variance for growth rate of the grafted union diameter of the young Tlab-Nak seedling rootstocks at 60 DAG (Figure 17)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|---------|
| REP (A) | 2 | 2212.08 | 1106.04 | 2.00 | 0.1856 |
| TRT (B) | 5 | 2865.61 | 573.121 | 1.04 | 0.44677 |
| A*B | 10 | 5522.50 | 552.250 | | |
| TOTAL | 17 | 10600.2 | | | |

D32: Analysis of variance for growth rate of the grafted union diameter of the young Tlab-Nak seedling rootstocks at 90 DAG (Figure 17)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 5695.69 | 2847.85 | 2.43 | 0.1380 |
| TRT (B) | 5 | 5403.47 | 1080.69 | 0.92 | 0.5052 |
| A*B | 10 | 11718.0 | 1171.80 | | |
| TOTAL | 17 | 22817.2 | | | |

D33: Analysis of variance for growth rate of the grafted union diameter of the young Tlab-Nak seedling rootstocks at 120 DAG (Figure 17)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 6766.49 | 3383.24 | 2.46 | 0.1356 |
| TRT (B) | 5 | 4647.68 | 929.536 | 0.67 | 0.6522 |
| A*B | 10 | 13775.9 | 1377.59 | | |
| TOTAL | 17 | 25190.1 | | | |

D34: Analysis of variance for growth rate of the grafted union diameter of the young Tlab-Nak seedling rootstocks at 150 DAG (Figure 17)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 8428.63 | 4214.32 | 2.64 | 0.1203 |
| TRT (B) | 5 | 6415.44 | 1283.09 | 0.80 | 0.5726 |
| A*B | 10 | 15984.3 | 1598.43 | | |
| TOTAL | 17 | 30828.4 | | | |

D35: Analysis of variance for diameter of Kaew scions on young Tlab-Nak seedling rootstocks at 20 DAG (Figure 18)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 0.02238 | 0.01119 | 4.42 | 0.0460 |
| TRT (B) | 5 | 0.02891 | 0.00578 | 2.28 | 0.1331 |
| A*B | 10 | 0.02278 | 0.00253 | | |
| TOTAL | 17 | 0.07406 | | | |

D36: Analysis of variance for diameter of Kaew scions on young Tlab-Nak seedling rootstocks at 60 DAG (Figure 18)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 0.01829 | 0.00915 | 3.75 | 0.0655 |
| TRT (B) | 5 | 0.01022 | 0.00204 | 0.84 | 0.5551 |
| A*B | 10 | 0.02196 | 0.00244 | | |
| TOTAL | 17 | 0.05047 | | | |

D37: Analysis of variance for diameter of Kaew scions on young Tlab-Nak seedling rootstocks at 90 DAG (Figure 18)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 0.02080 | 0.01040 | 3.69 | 0.0674 |
| TRT (B) | 5 | 0.01112 | 0.00222 | 0.79 | 0.5825 |
| A*B | 10 | 0.02533 | 0.00281 | | |
| TOTAL | 17 | 0.05725 | | | |

D38: Analysis of variance for diameter of Kaew scions on young Tlab-Nak seedling rootstocks at 120 DAG (Figure 18)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|-----------|------|--------|
| REP (A) | 2 | 0.01490 | 0.00745 | 2.13 | 0.1747 |
| TRT (B) | 5 | 0.00291 | 5.813E-04 | 0.17 | 0.9688 |
| A*B | 10 | 0.03145 | 0.00349 | | |
| TOTAL | 17 | 0.04926 | | | |

D39: Analysis of variance for diameter of Kaew scions on young Tlab-Nak seedling rootstocks at 150 DAG (Figure 18)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 0.04248 | 0.02124 | 1.89 | 0.2065 |
| TRT (B) | 5 | 0.02936 | 0.00587 | 0.52 | 0.7544 |
| A*B | 10 | 0.10118 | 0.01124 | | |
| TOTAL | 17 | 0.17302 | | | |

D40: Analysis of variance for of Kaew scion length on young Tlab-Nak seedling rootstocks at 20 DAG (Figure 19)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 28.6319 | 14.3160 | 2.50 | 0.1367 |
| TRT (B) | 5 | 47.9648 | 9.59296 | 1.68 | 0.2357 |
| A*B | 10 | 51.4905 | 5.72117 | | |
| TOTAL | 17 | 128.087 | | | |

D41: Analysis of variance for of Kaew scion length on young Tlab-Nak seedling rootstocks at 60 DAG (Figure 19)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 2.47672 | 1.23836 | 0.08 | 0.9211 |
| TRT (B) | 5 | 30.1280 | 6.02561 | 0.40 | 0.8350 |
| A*B | 10 | 134.453 | 14.9392 | | |
| TOTAL | 17 | 167.058 | | | |

D42: Analysis of variance for of Kaew scion length on young Tlab-Nak seedling rootstocks at 90 DAG (Figure 19)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 8.86360 | 4.43180 | 0.29 | 0.7581 |
| TRT (B) | 5 | 8.86360 | 9.55880 | 0.62 | 0.6914 |
| A*B | 10 | 139.622 | 15.5135 | | |
| TOTAL | 17 | 196.279 | | | |

D43: Analysis of variance for of Kaew scion length on young Tlab-Nak seedling rootstocks at 120 DAG (Figure 19)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 30.7600 | 15.3800 | 0.48 | 0.6334 |
| TRT (B) | 5 | 60.9294 | 12.1859 | 0.38 | 0.8499 |
| A*B | 10 | 288.023 | 32.0025 | | |
| TOTAL | 17 | 379.712 | | | |

D44: Analysis of variance for of Kaew scion length on young Tlab-Nak seedling rootstocks at 150 DAG (Figure 19)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 24.4011 | 12.2005 | 0.60 | 0.5693 |
| TRT (B) | 5 | 66.0071 | 13.2014 | 0.65 | 0.6696 |
| A*B | 10 | 182.941 | 20.3268 | | |
| TOTAL | 17 | 273.350 | | | |

D45: Analysis of variance for number of leaves of Kaew scions on young Tlab-Nak seedling rootstocks at 20 DAG (Figure 20)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 21.5812 | 10.7906 | 1.00 | 0.4053 |
| TRT (B) | 5 | 93.3746 | 18.6749 | 1.73 | 0.2235 |
| A*B | 10 | 97.1088 | 10.7899 | | |
| TOTAL | 17 | 212.065 | | | |

D46: Analysis of variance for number of leaves of Kaew scions on young Tlab-Nak seedling rootstocks at 60 DAG (Figure 20)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 16.0447 | 8.02233 | 0.49 | 0.6302 |
| TRT (B) | 5 | 53.4881 | 10.6976 | 0.65 | 0.6703 |
| A*B | 10 | 148.469 | 16.4966 | | |
| TOTAL | 17 | 218.002 | | | |

D47: Analysis of variance for number of leaves of Kaew scions on young Tlab-Nak seedling rootstocks at 90 DAG (Figure 20)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 40.2889 | 20.1445 | 1.21 | 0.3413 |
| TRT (B) | 5 | 76.8998 | 15.3800 | 0.93 | 0.5062 |
| A*B | 10 | 149.287 | 16.5875 | | |
| TOTAL | 17 | 266.476 | | | |

D48: Analysis of variance for number of leaves of Kaew scions on young Tlab-Nak seedling rootstocks at 120 DAG (Figure 20)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 120.568 | 60.2839 | 1.86 | 0.2105 |
| TRT (B) | 5 | 70.7266 | 14.1453 | 0.44 | 0.8125 |
| A*B | 10 | 291.401 | 32.3779 | | |
| TOTAL | 17 | 482.695 | | | |

D49: Analysis of variance for number of leaves of Kaew scions on young Tlab-Nak seedling rootstocks at 150 DAG (Figure 20)

| SOURCE | DF | SS | MS | F | P |
|---------|----|---------|---------|------|--------|
| REP (A) | 2 | 44.9427 | 22.4714 | 1.18 | 0.3505 |
| TRT (B) | 5 | 75.5100 | 15.1020 | 0.79 | 0.5804 |
| A*B | 10 | 171.288 | 19.0320 | | |
| TOTAL | 17 | 291.741 | | | |

Curriculum Vitae

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