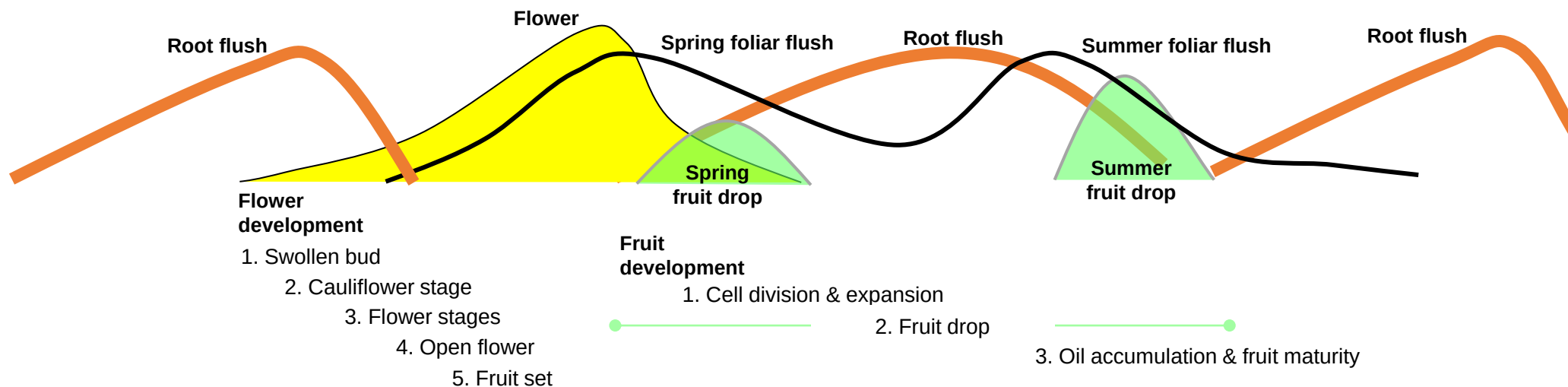




Appendix 1

Updated: October 2023

Avocado phenology



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Appendix 2

Updated: October 2023

Monitoring record sheet

AVOCADO PHENOLOGY PICTORIAL GUIDE

Flower development				
Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Swollen bud	Cauliflower stage	Flower development	Open flower (pollination)	Fruit set
		A (flower with flush = indeterminate) 		
		B (no flush = determinate) 		
A	B	C	D	E

Date:

Location:

Scout name:

(A) Data trees:

(B) Observation points per tree (Obs.):

Fruit development

Stage 1	Stage 2
Cell division & expansion	Fruit drop
	
F	G
	Stage 3 Oil accumulation & fruit maturity 



Scouting record sheet instructions

1. Write the date, location and your name clearly on each sheet.
2. Write the number of data trees (A) for the location – this should be 2% of the number of trees in the location.
3. Write the number of observation points (B) per tree (4 is recommended for large trees).
4. Calculate the average as the sum of the counts or presence ÷ (A x B) or incidence % as the sum of presence ÷ (A x B) x 100.

Monitoring record sheet

Updated: October 2023

PHENOLOGY MONITORING – LIVE SCOUTING

Note presence per 1m³ observation point, write 1 (present) or 0 (absent).

(A) Data trees:

(B) Observation points
per tree (Obs.):

Date:

Location:

Scout name:

(A) x (B) =



Phenology	Description	Observation point 1	Observation point 2	Observation point 3	Observation point 4	Sum of presence	Incidence %
Flower development	Swollen bud (Stage 1)						
	Cauliflower stage (Stage 2)						
	Indeterminate flower (Stage 3A)						
	Determinate flower (Stage 3B)						
	Open flower (Stage 4)						
	Fruit set (Stage 5)						
Fruit development	Cell division & expansion (Stage 1)						
	Fruit drop (Stage 2)						
	Oil accumulation and maturity (Stage 3)						
Tree development	Leaf flush						
	Root flush						
Beneficials							

*honeybees and other pollinators, parasitoids, lacewings, lady bugs, spiders, geckos, bats etc.

Monitoring record sheet

Updated: October 2023

AVOCADO PESTS – TRAP MONITORING

Count per trap per week, write a number.

(A) Data trees:

(B) Observation points
per tree (Obs.):

Date:

Location:

Scout name:

(A) x (B) =



Pest	Picture	Trap 1	Trap 2	Trap 3	Trap 4	Sum	Average
Indigenous fruit flies: *MEDITERRANEAN FRUIT FLY (<i>Ceratitis capitata</i>)	1 						
*MARULA FRUIT FLY (<i>Ceratitis cosyra</i>)	2 						
*NATAL FRUIT FLY (<i>Ceratitis rosa</i>)	3 						
*CAPE FRUIT FLY (<i>Ceratitis quilicii</i>)	4 						
Exotic fruit fly: *ORIENTAL FRUIT FLY (<i>Bactrocera dorsalis</i>)	5 						
POLYPHAGOUS SHOT-HOLE BORER (<i>Euwallacea fornicatus</i>)	6 						
*FALSE CODLING MOTH (<i>Thaumatotibia leucotreta</i>)	7 						

Notes: record all control measures taken including name of product, active ingredient, dosage, and the time of application.

*Quarantine pests to monitor during phenological stages A (flower development) – G (fruit development).

^{1,3,4,5}Fruit fly ID Australia; ²G. Goergen; ⁶J Hulcr; ⁷E Joubert

Monitoring record sheet

Updated: October 2023

(A) Data trees:

(B) Observation points
per tree (Obs.):

Date:

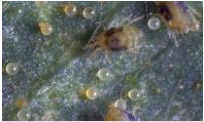
Location:

Scout name:

(A) x (B) =



AVOCADO PESTS – LIVE SCOUTING

Pest	Picture	Obs. 1	2	3	4	Sum	% incidence or average
AVO BUG adults + nymphs <i>write a number</i> B-F	8 						
THRIPS adults + nymphs on fruitlets <i>write a number</i> E-F	9 						
Heart-shaped SCALE <i>write 1/0</i>	10 						
Avocado SCALE <i>write 1/0</i>	11 						
MITES <i>write 1/0</i>	12 						

Monitoring record sheet

Updated: October 2023

(A) Data trees:

(B) Observation points
per tree (Obs.):

Date:

Location:

Scout name:

(A) x (B) =



AVOCADO DISEASES – LIVE SCOUTING

Disease	Picture	Obs. 1	2	3	4	Sum	% incidence
*FRUIT ROT AND LEAF NECROSIS (<i>Neofusicoccum luteum</i>)	15 						
*CERCOSPORA (<i>Pseudocercospora purpurea</i>)	16 						
PEPPERSPOT (<i>Colletotrichum</i> spp.)	17 						
*STEM END ROT (<i>Dothiorella aromatica</i>)	18 						

Notes: record all control measures taken including name of product, active ingredient, dosage, and the time of application.

*Quarantine diseases to monitor during phenological stages A (flower development) – G (fruit development) focusing on the fruit, stalk, branches, stems and leaves.

Monitoring record sheet

Updated: October 2023

(A) Data trees:

(B) Observation points
per tree (Obs.):

Date:

Location:

Scout name:

(A) x (B) =



AVOCADO QUARANTINE PESTS – LIVE SCOUTING

Pest	Obs. 1	2	3	4	Sum	% incidence or average
Fig Wax SCALE (<i>Ceroplastes rusci</i>) write 1/0	19 					
Soft Wax SCALE (<i>Ceroplastes destructor</i>) write 1/0	20 					
Fuller's rose beetle (<i>Pantomorus cervinus</i>) write 1/0	21 					
African cotton leafworm (<i>Spodoptera littoralis</i>) write 1/0	22 					
Long-tailed MEALYBUG (<i>Pseudococcus longispinus</i>) write 1/0	23 					
COCONUT BUG (<i>Pseudothrips wayi</i>) adult or nymphs write 1/0	24 					

Notes: record all control measures taken including name of product, active ingredient, dosage, and the time of application.

All pests listed are quarantine pests.

Monitor every second week during phenological stages A (flower development) – G (fruit development) focusing on the fruits, stalk, branches, stems and leaves.

¹⁹Invasive.org; ²⁰Project Noah; ²¹PaDil; ²²CABI Compendium; ²³R Rinaldo ; ²⁴E Joubert

Monitoring record sheet

Updated: October 2023

Date:

Location:

Scout name:



AVOCADO SUNBLOTCH VIROID (ASBVd) – LIVE SCOUTING

Block (reference)	²³ Virus symptoms results	Virus screening results	Tree & roots removed & destroyed

Notes: Monitor every second week during phenological stages A (flower development) – G (fruit development) focusing on the fruits, stalk, branches, stems and leaves. Look for weakened tree vigour, short trunk, curved branches towards the ground; chlorosis and distortion of leaves; yellow, white, or pink markings on the fruits, and sunken caldera-like plaques on fruit.

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²³Refer to ASBVd information (<https://avocado.co.za/docs/avocado-sunblotch-viroid-asbvd/>) and fact sheet.