How shoot growth influences fruiting and light distribution

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ALTERNATE BEARING

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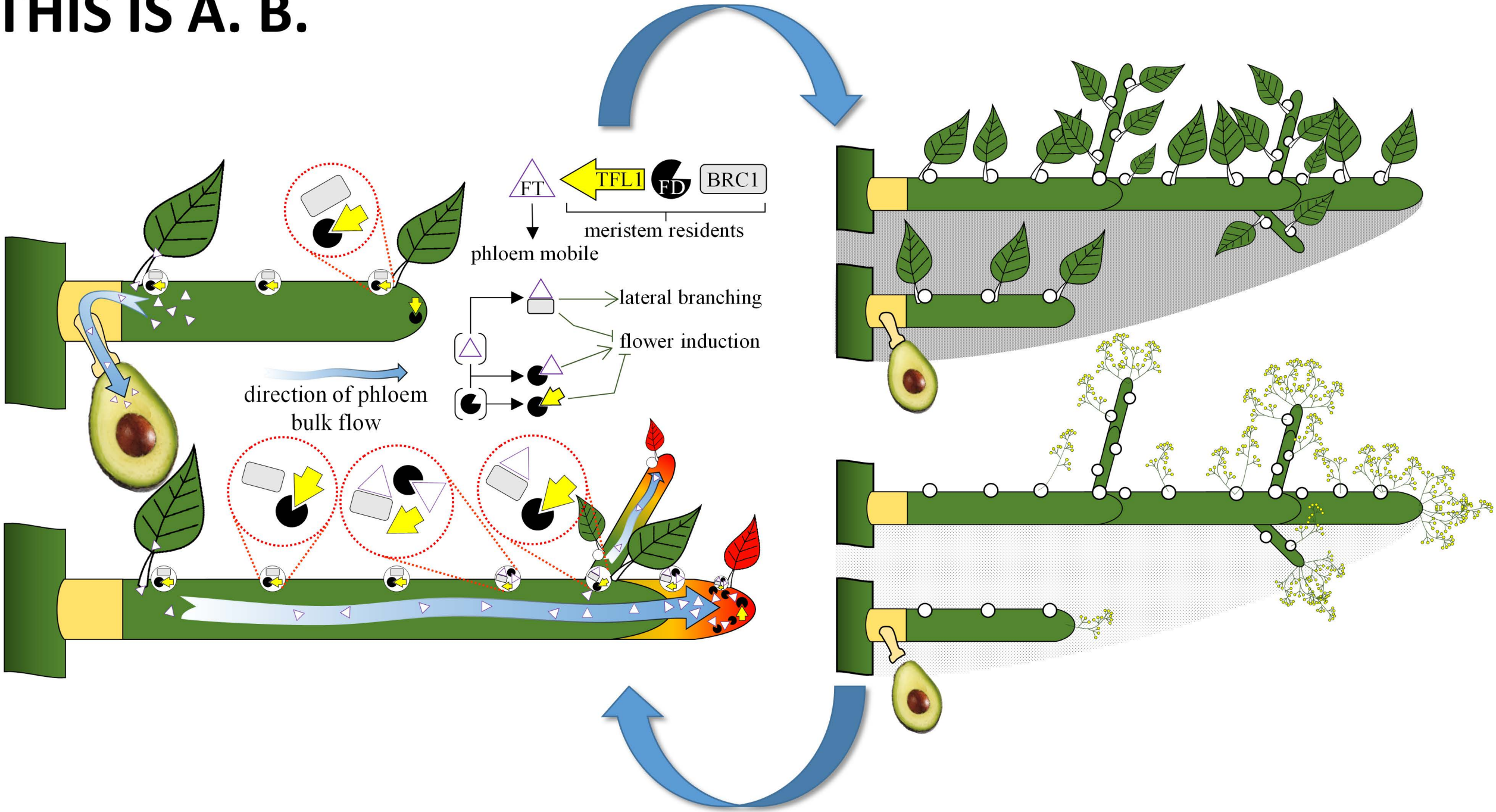
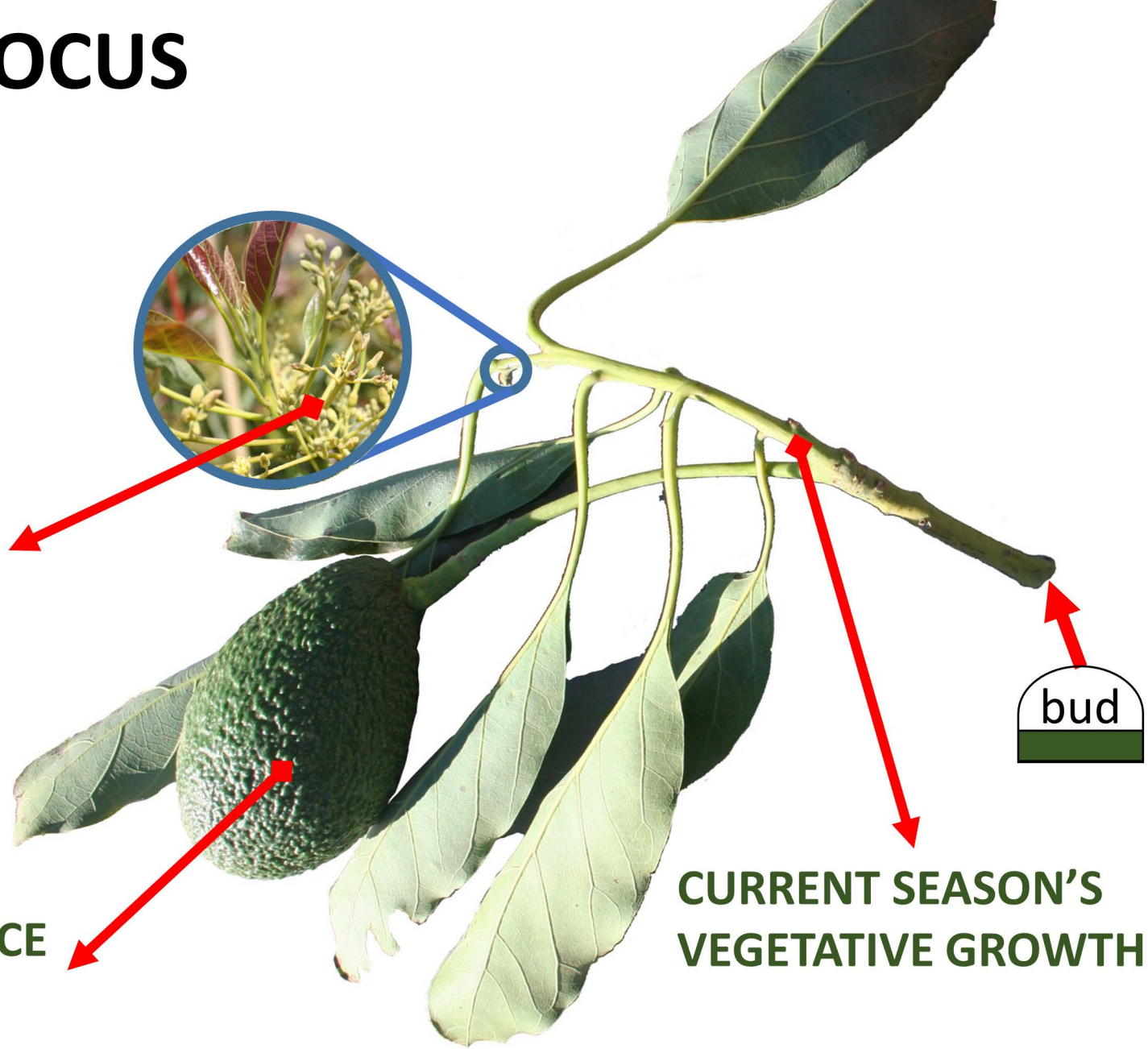
THIS IS A. B.


FT
TFL1
FD
BRC1
meristem residents
phloem mobile
lateral branching
flower induction
direction of phloem
bulk flow

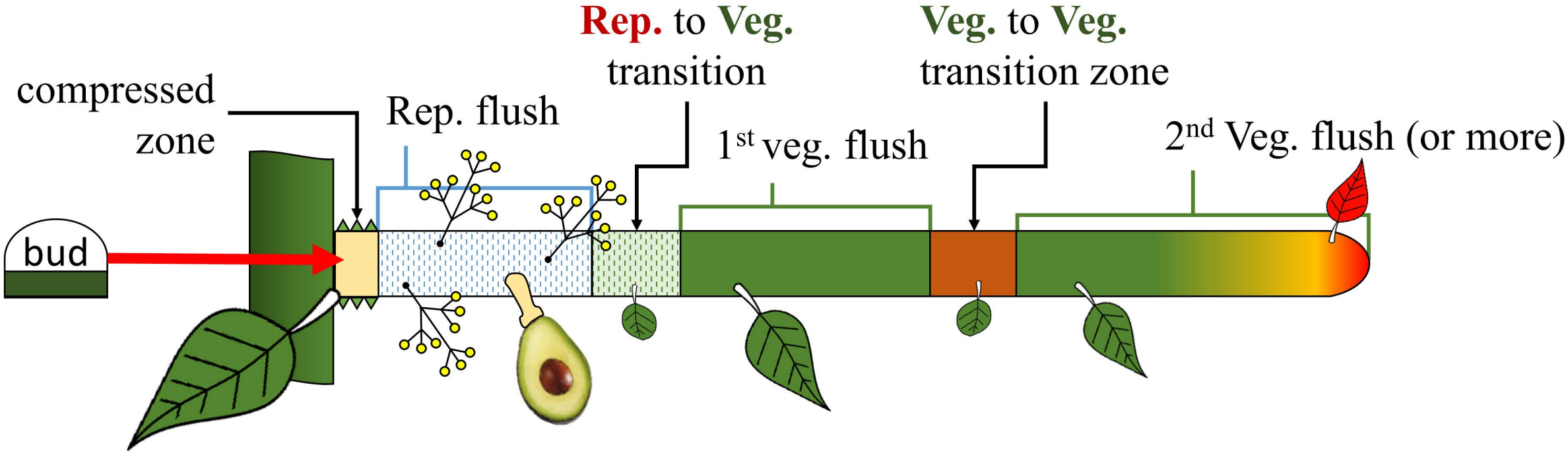
CHANGE OF RESEARCH FOCUS

SINGLE AVOCADO SHOOTS ARE THE PROPER RESEARCH UNIT TO FOLLOW

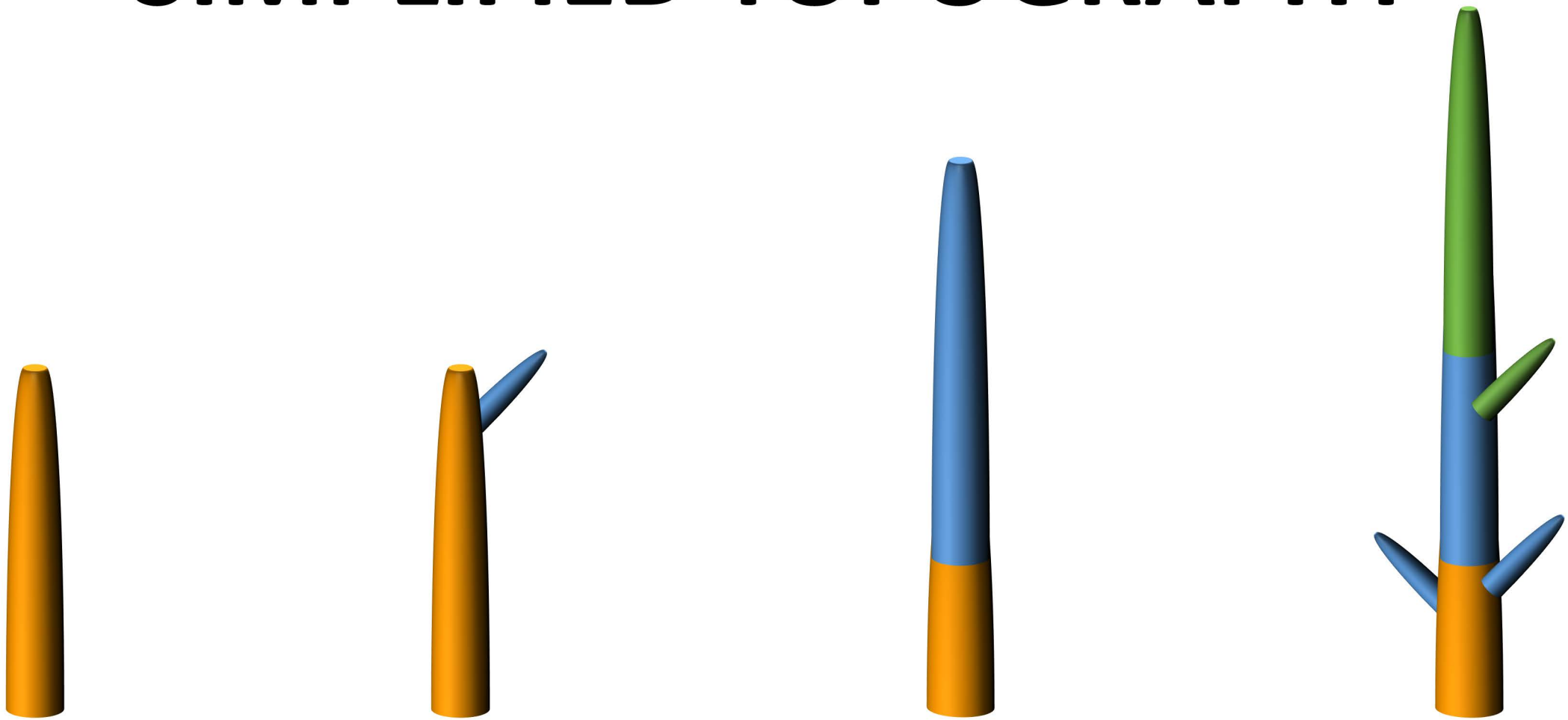


Shoot zones that are consistently observable

COMPARE and CONTRAST



SIMPLIFIED TOPOGRAPHY



1 flush simple

1 flush branched

2^+ flush simple

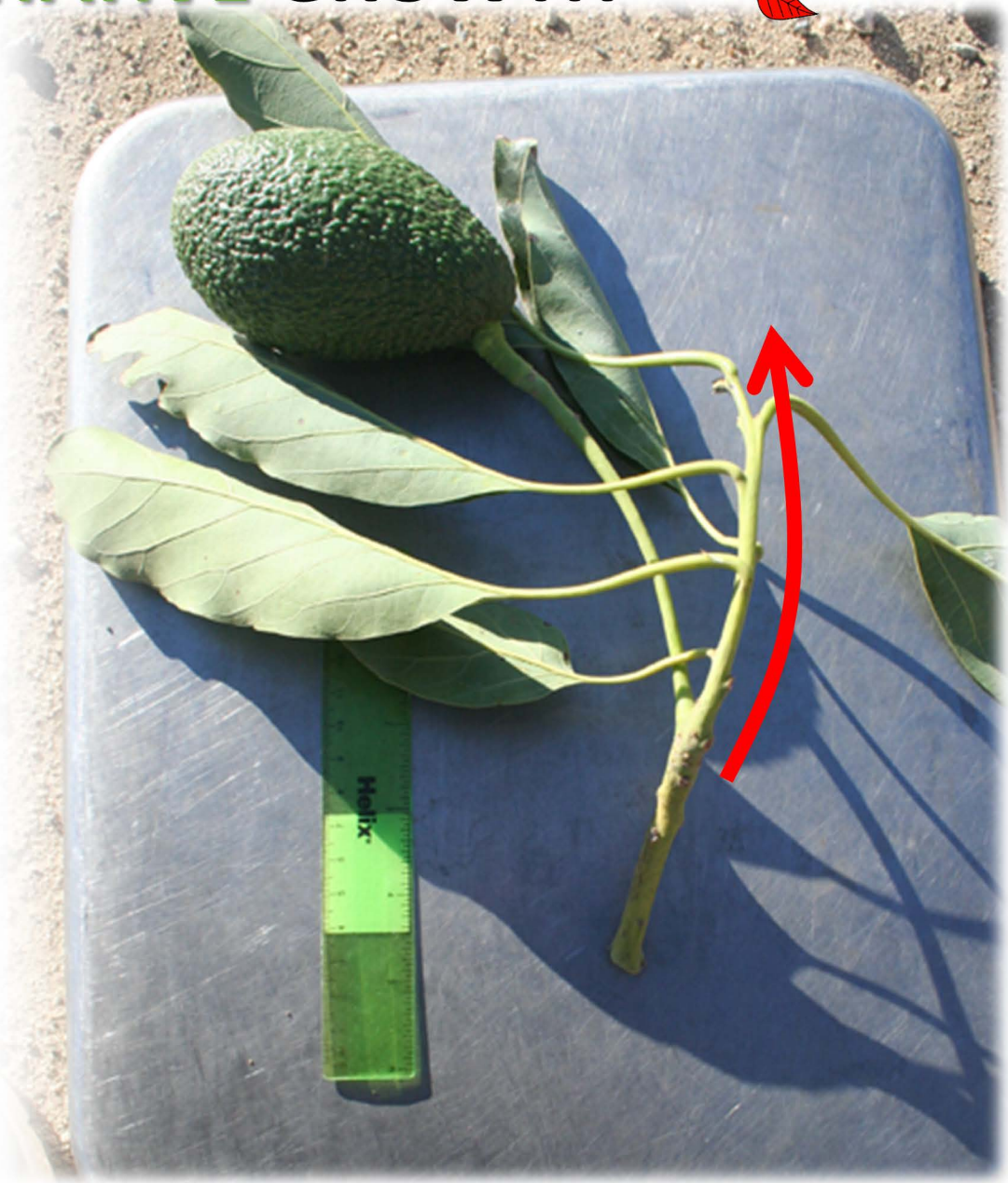
2^+ flush branched

FRUITS EFFECTS ON VEGETATIVE GROWTH

70 %

of fruiting shoots

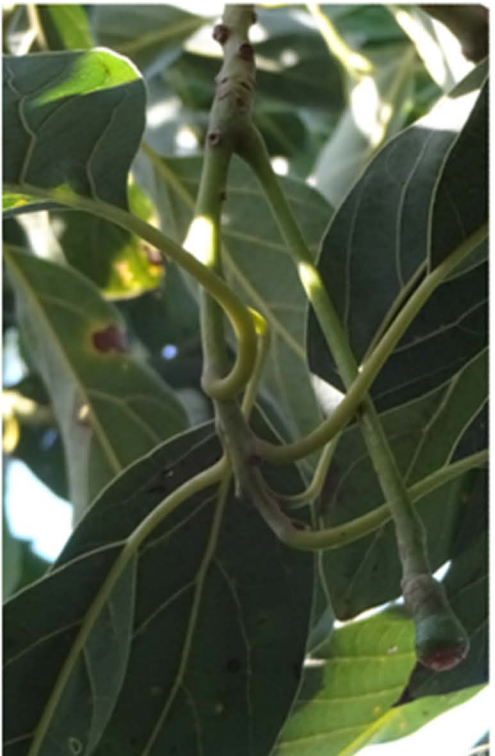
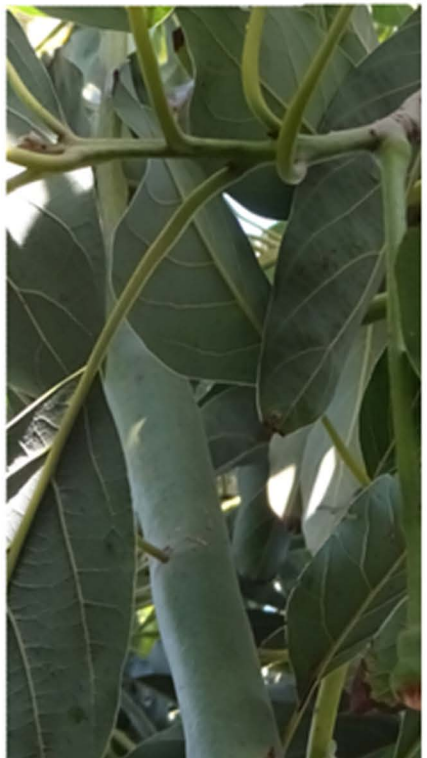
grew only 1 vegetative flush




UC, RIVERSIDE

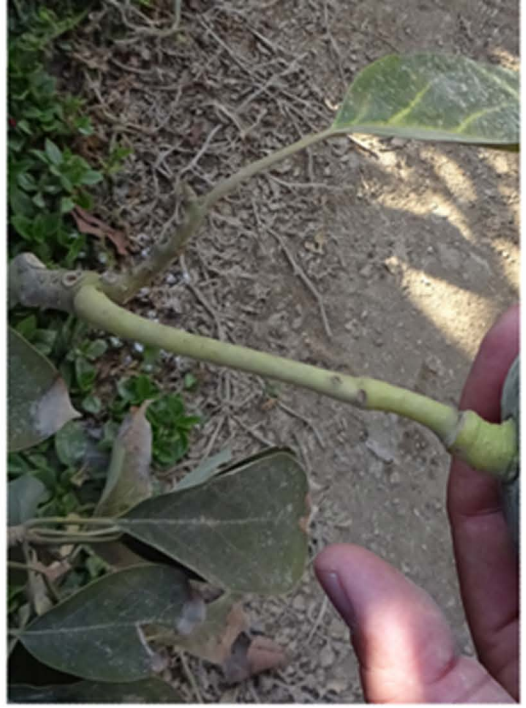

CHILE



ISRAEL



PERU





SOUTH
AFRICA

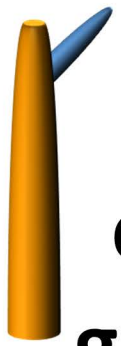
FRUITS EFFECTS ON VEGETATIVE GROWTH

FRUITS EFFECTS ON VEGETATIVE GROWTH

70 %

of fruiting shoots

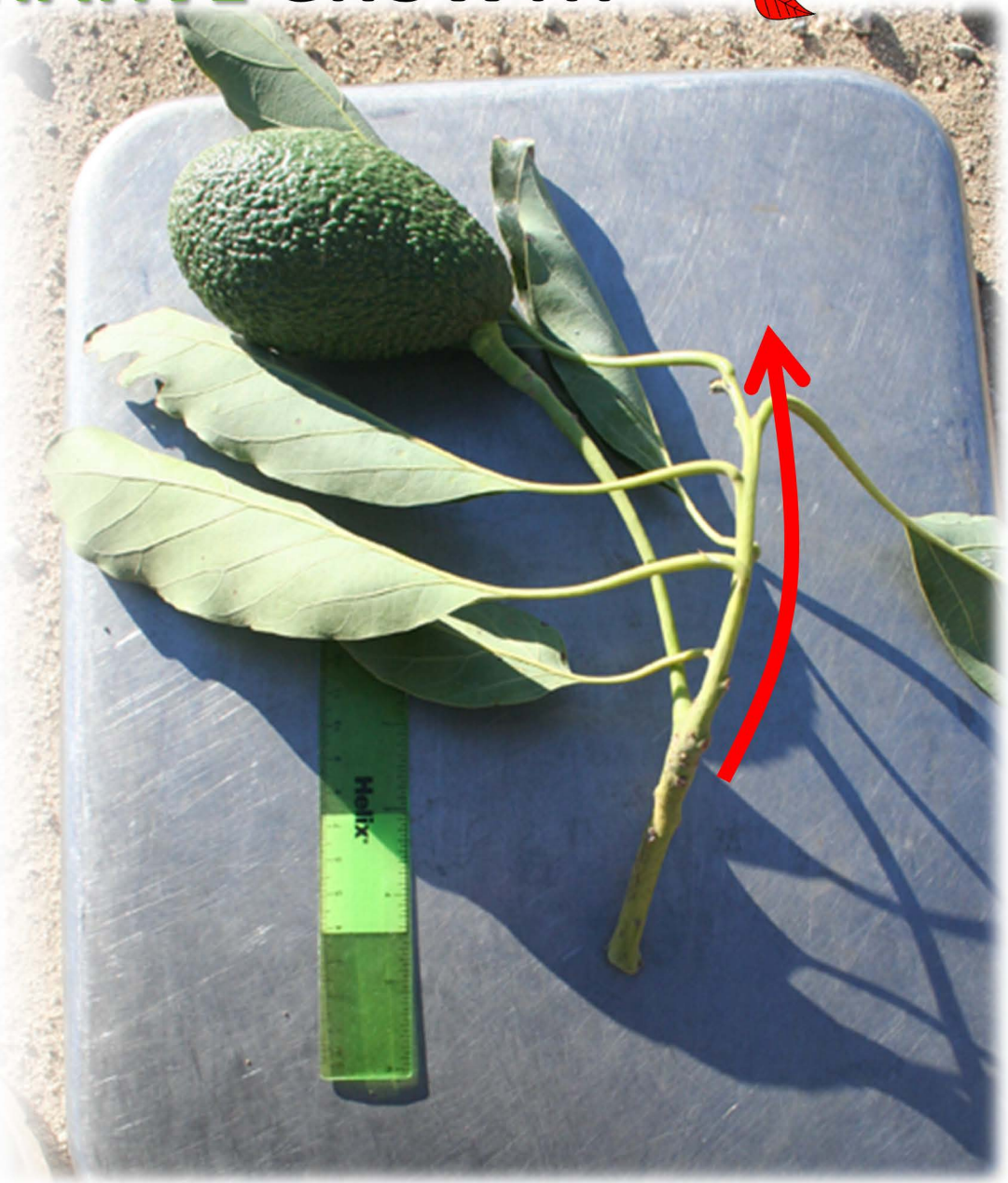
grew only 1 vegetative flush



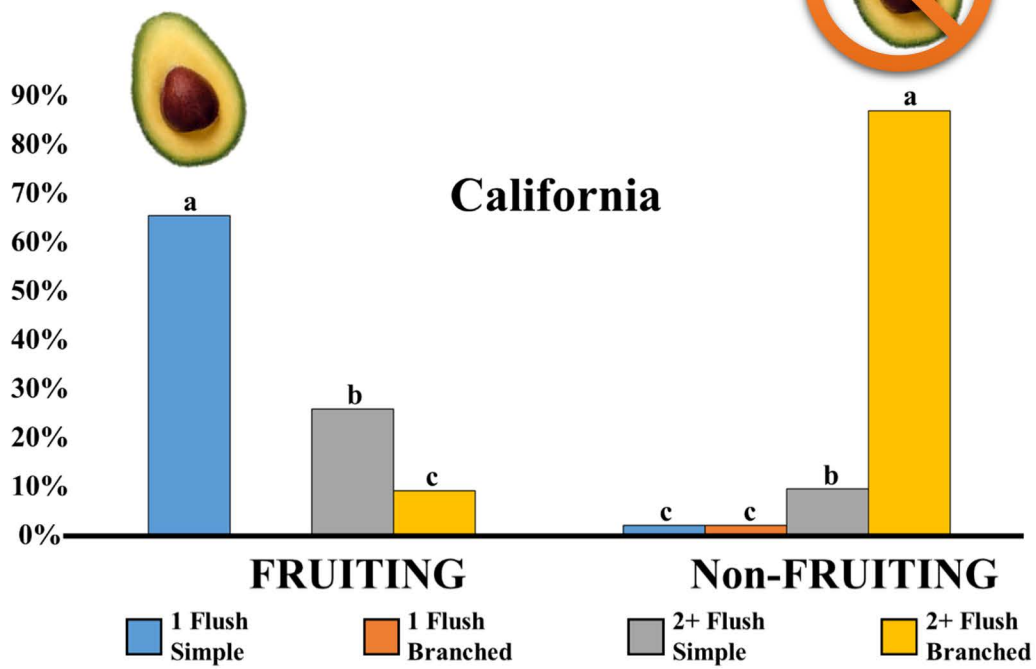
8.5 %

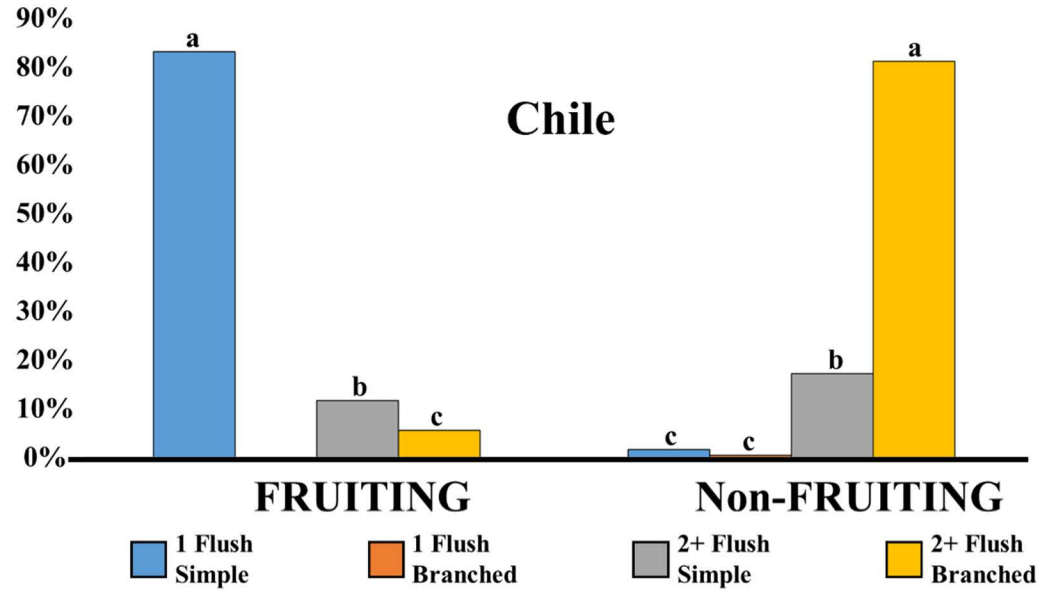
of fruiting shoots

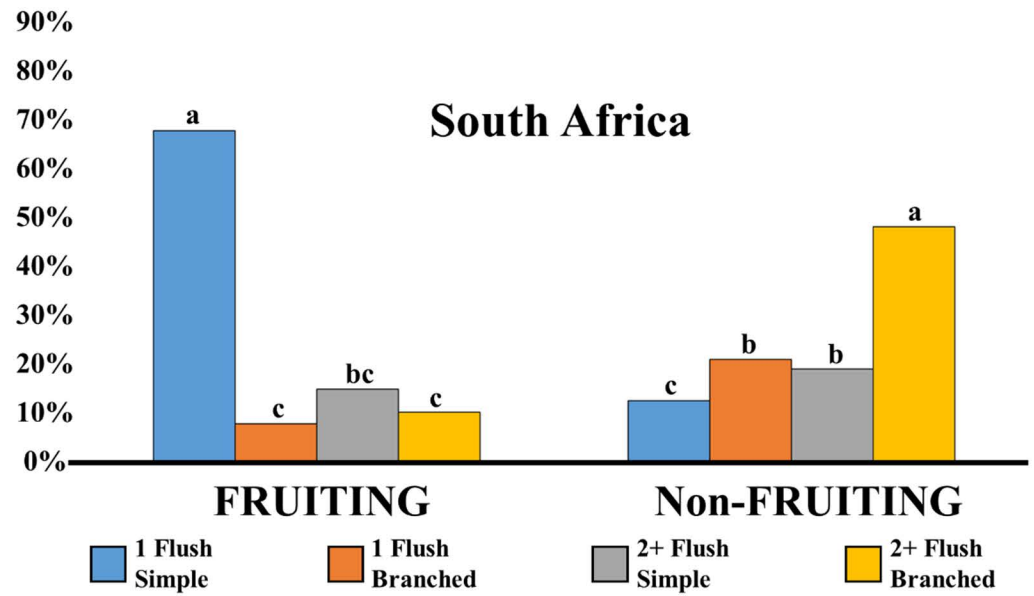
grew lateral shoots



FRUITS EFFECTS ON VEGETATIVE GROWTH

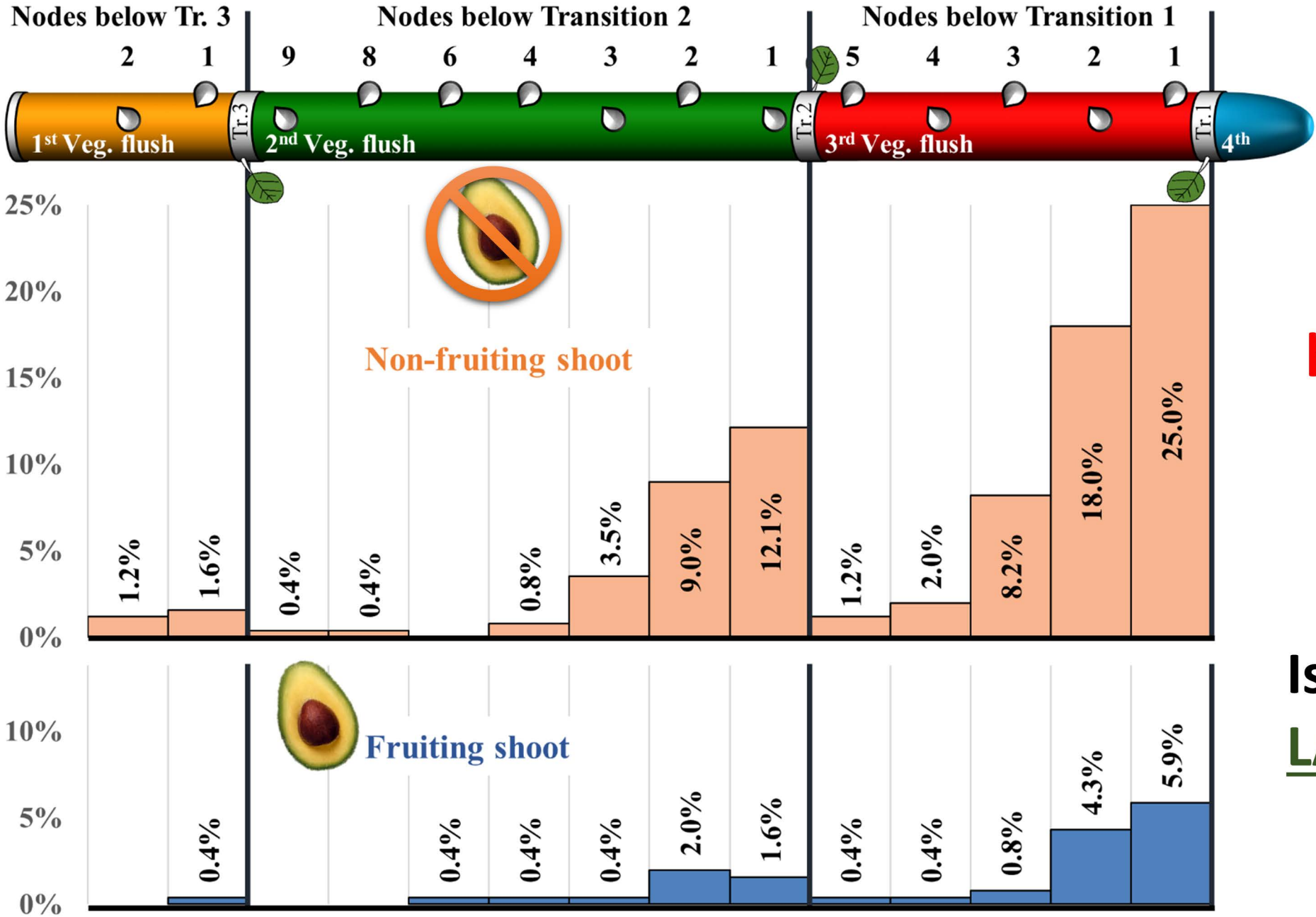






Now … Where are these laterals ?

Lateral branching “topography”

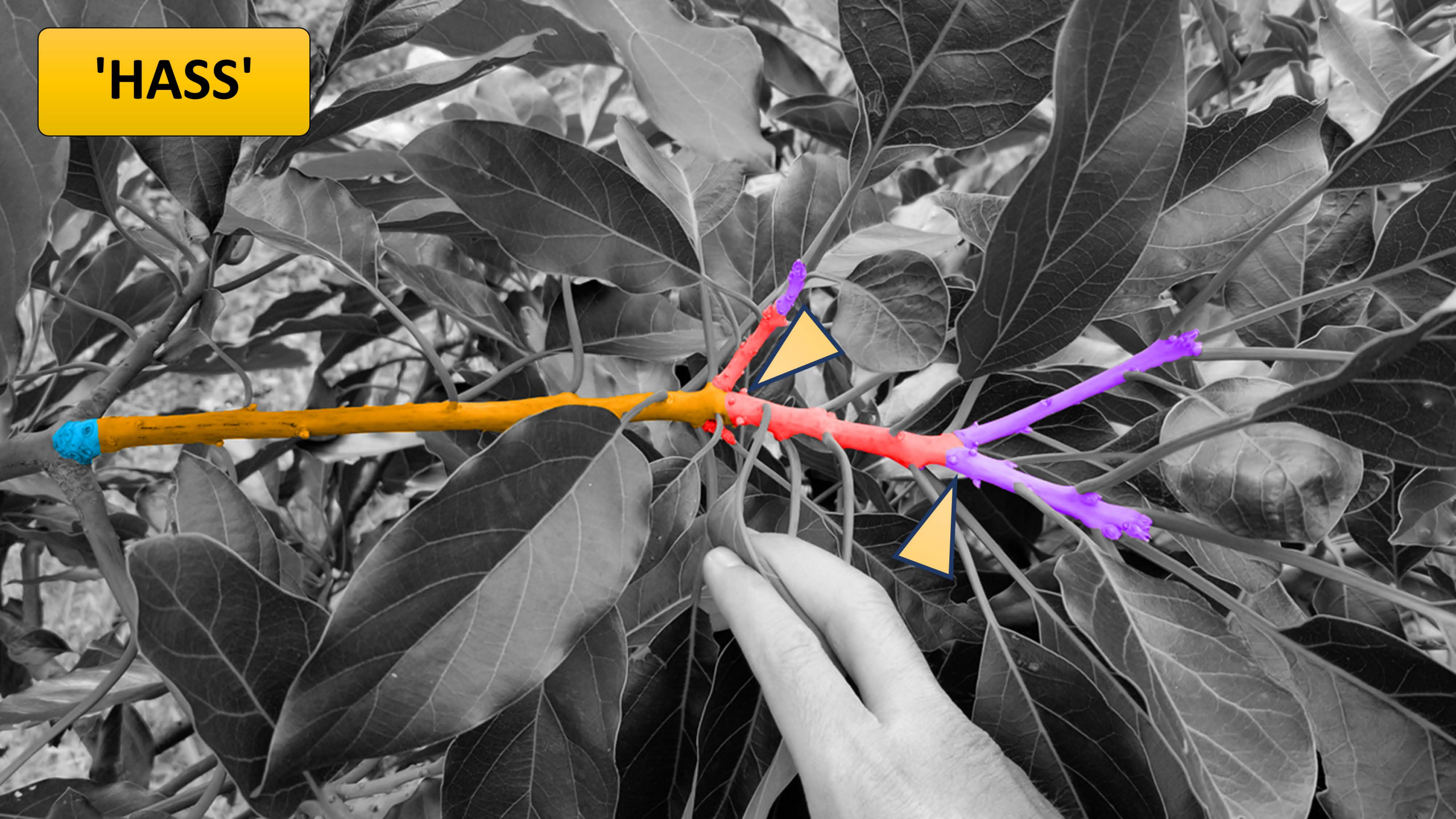


‘Hass’

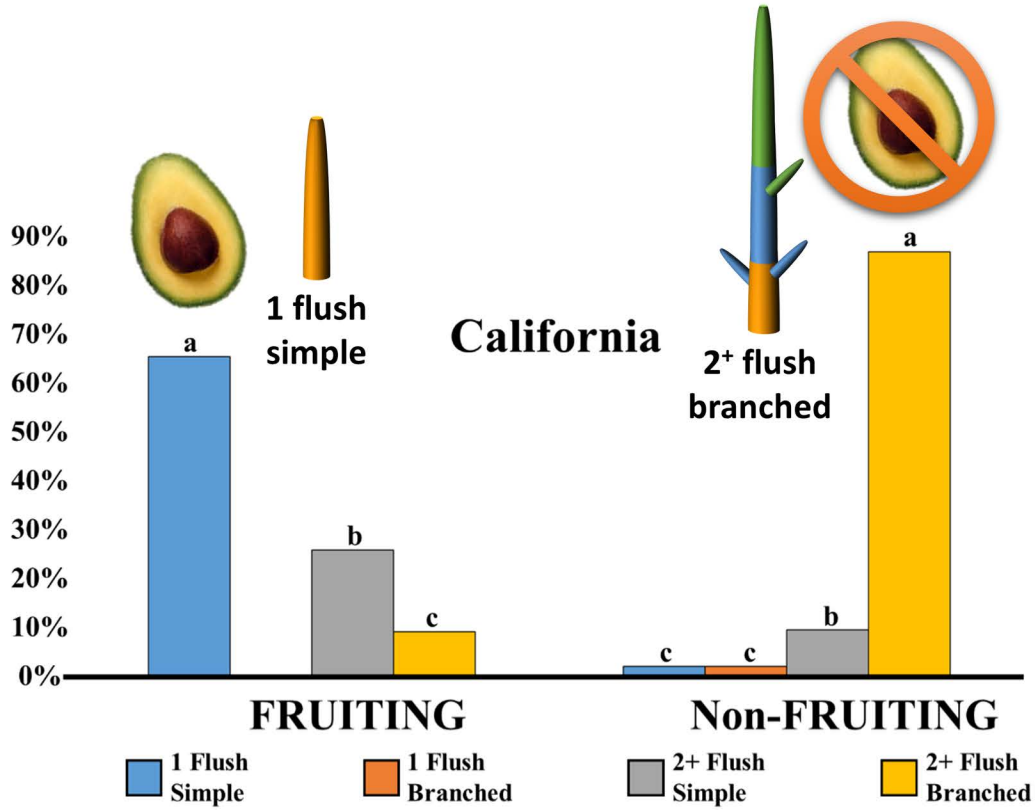
Distal 7.8% portion of the flush

(Independently of length)

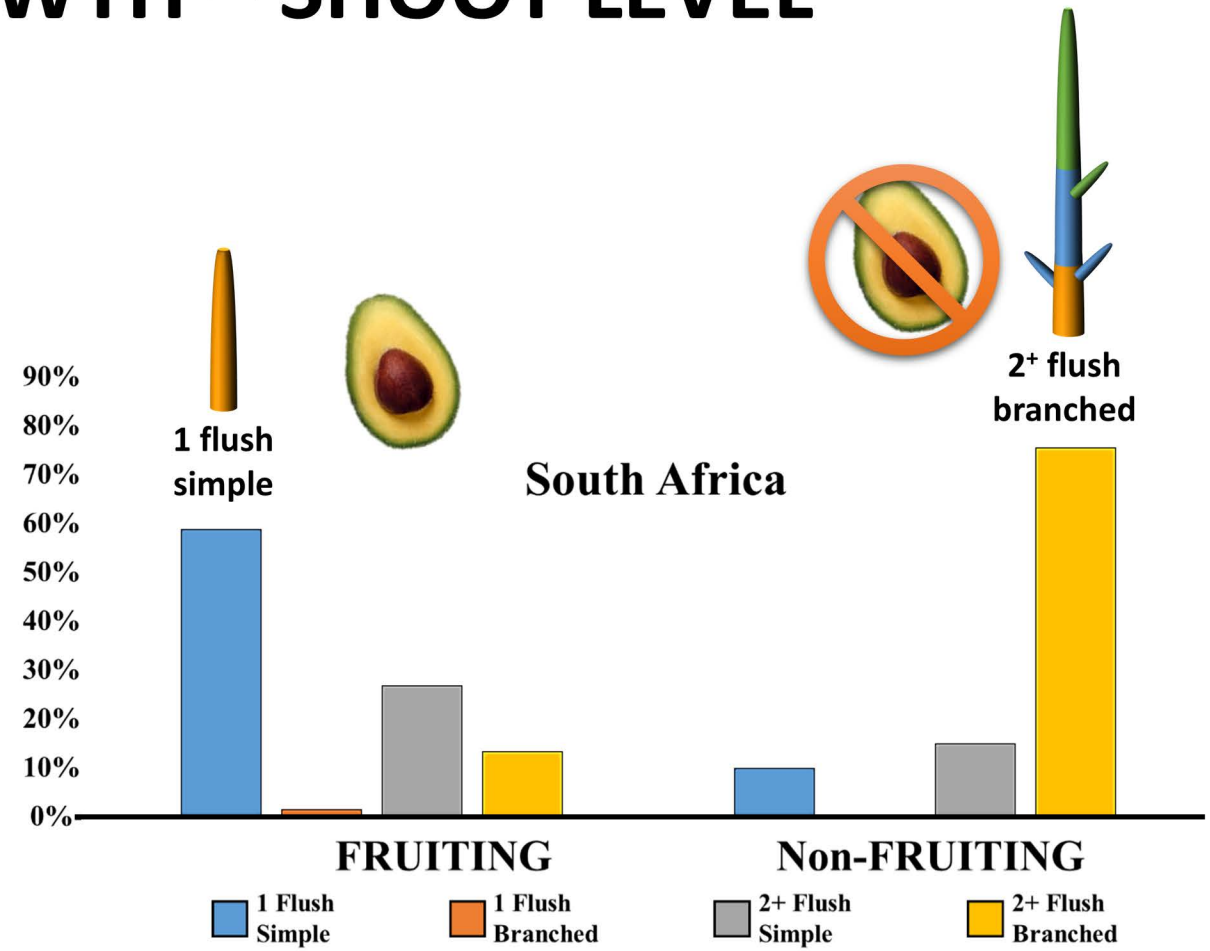
Is where you find LATERAL SHOOTS


'HASS'

VEGETATIVE GROWTH – SHOOT LEVEL



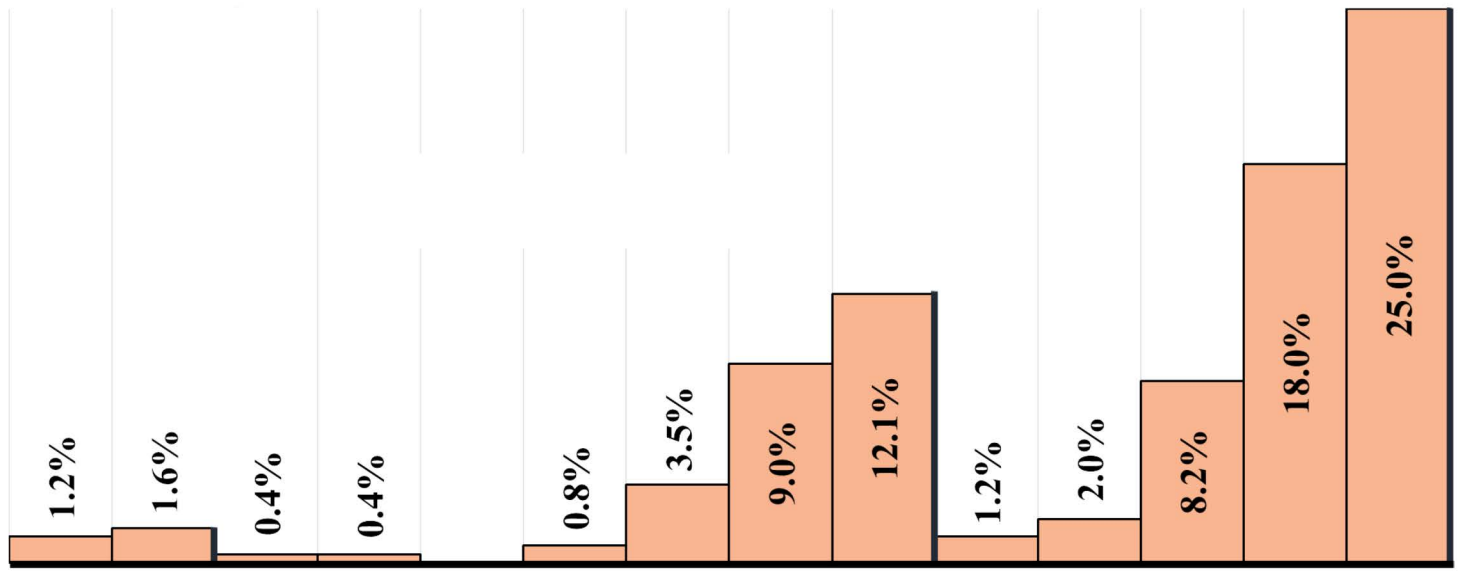
‘Hass’



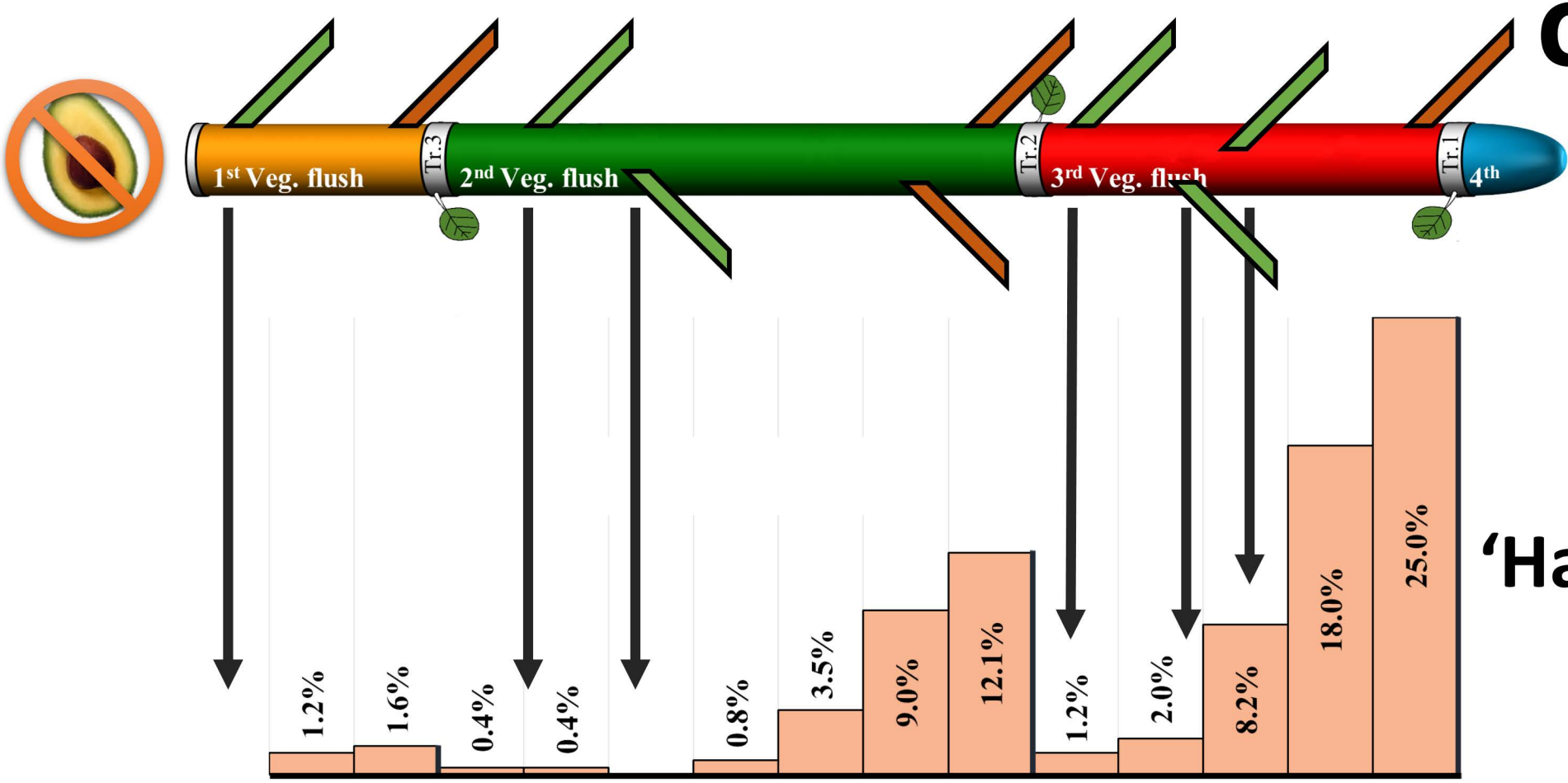
‘Maluma’

‘Hass’


1st Veg. flush
Tr.3
2nd Veg. flush
Tr.2
3rd Veg. flush
Tr.1
4th


1.2%
1.6%
0.4%
0.4%
0.8%
3.5%
9.0%
12.1%
1.2%
2.0%
8.2%
18.0%
25.0%

‘MALUMA’ on trellis



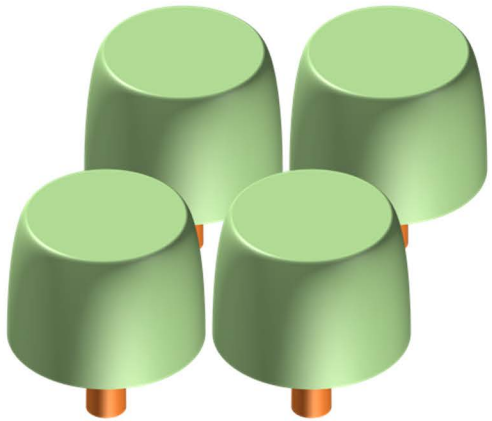
‘Hass’

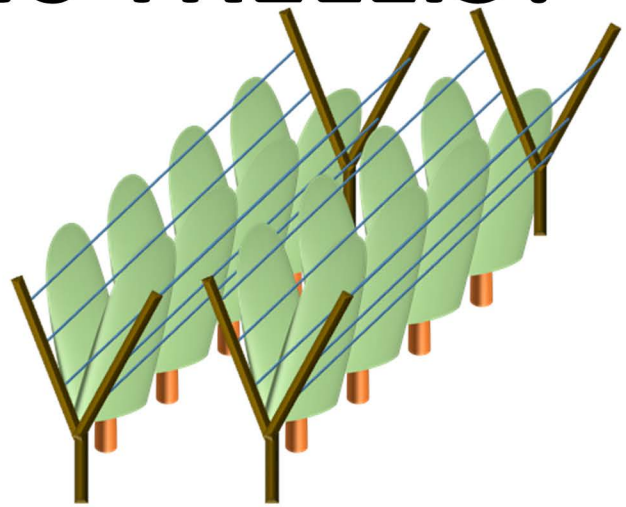

'MALUMA'

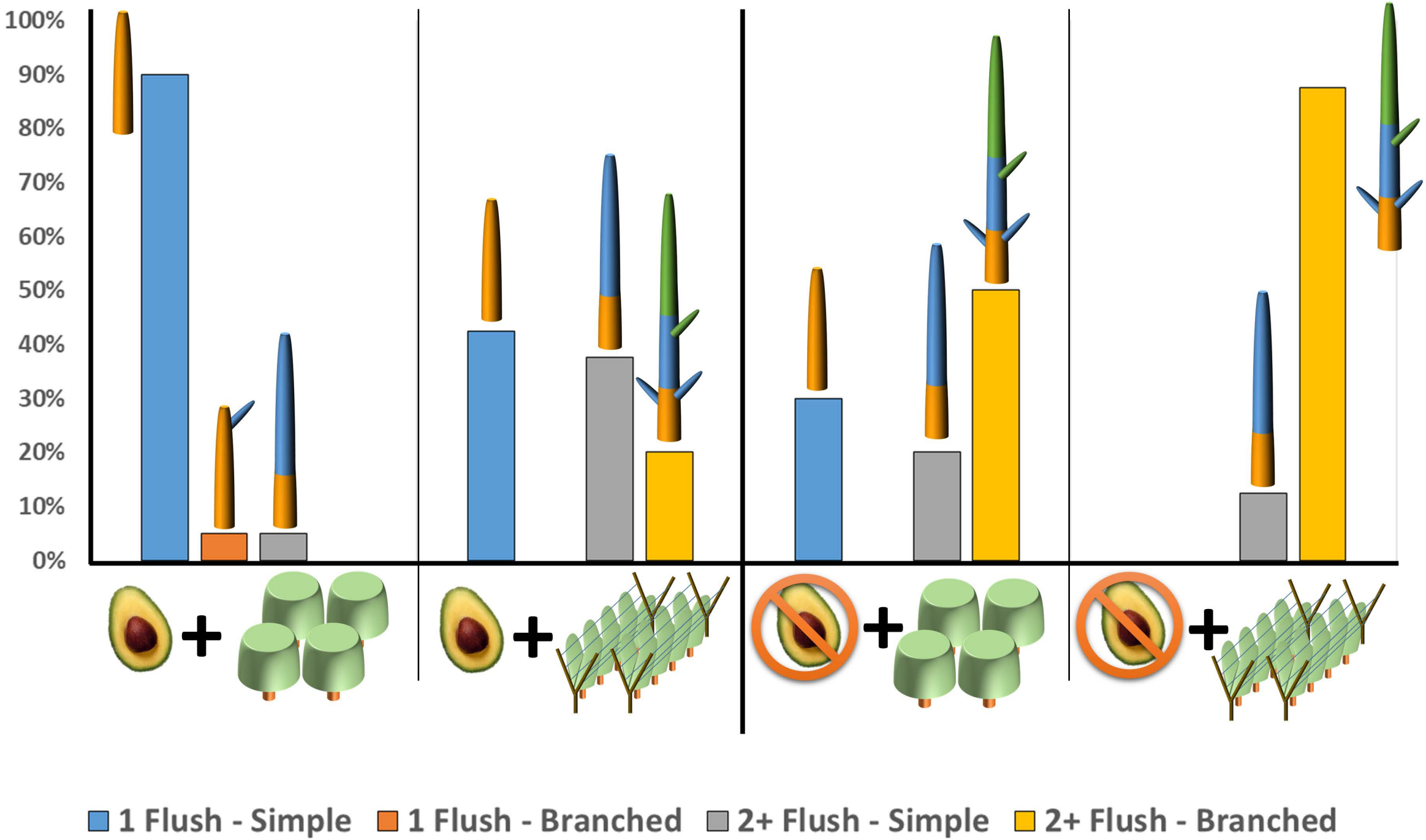
PREVIOUS COMPARED

vs SHOOTS

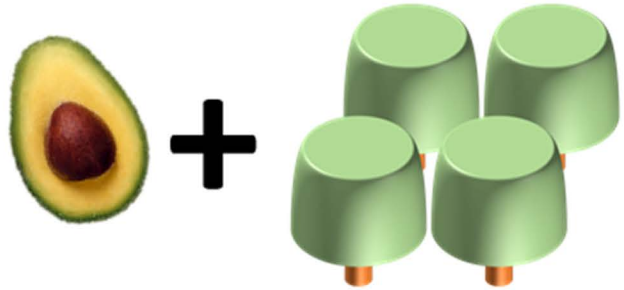
BUT WHAT ABOUT MALUMA SHOOTS on TRADITIONAL vs TRELLIS?






100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1 Flush - Simple
1 Flush - Branched
2+ Flush - Simple
2+ Flush - Branched

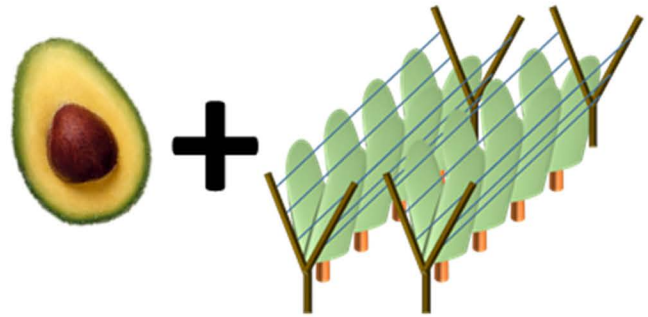
Hass



8.5 %

LATERAL BRANCHING

Maluma



20 %

LATERAL BRANCHING

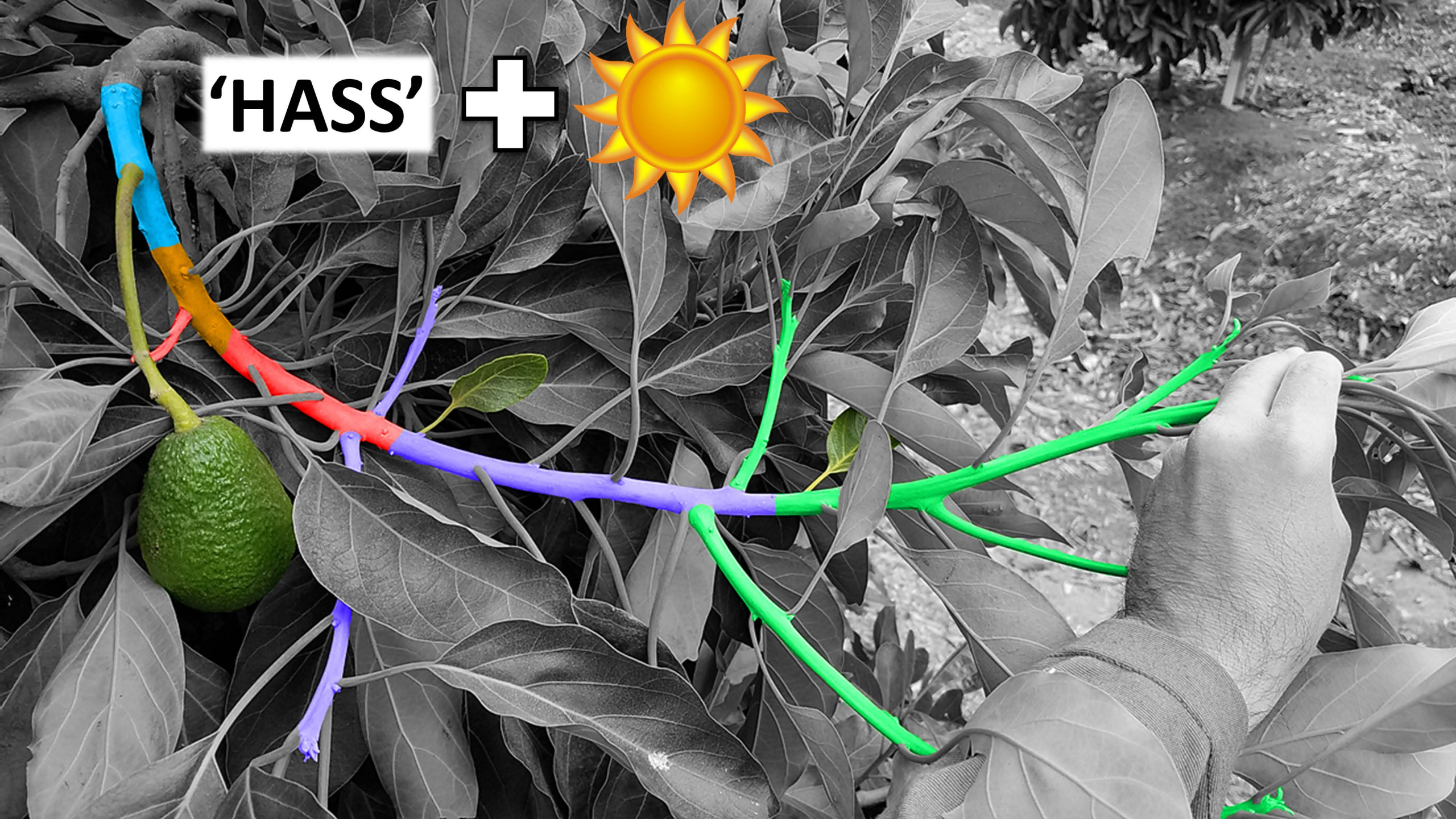
TRELLISING

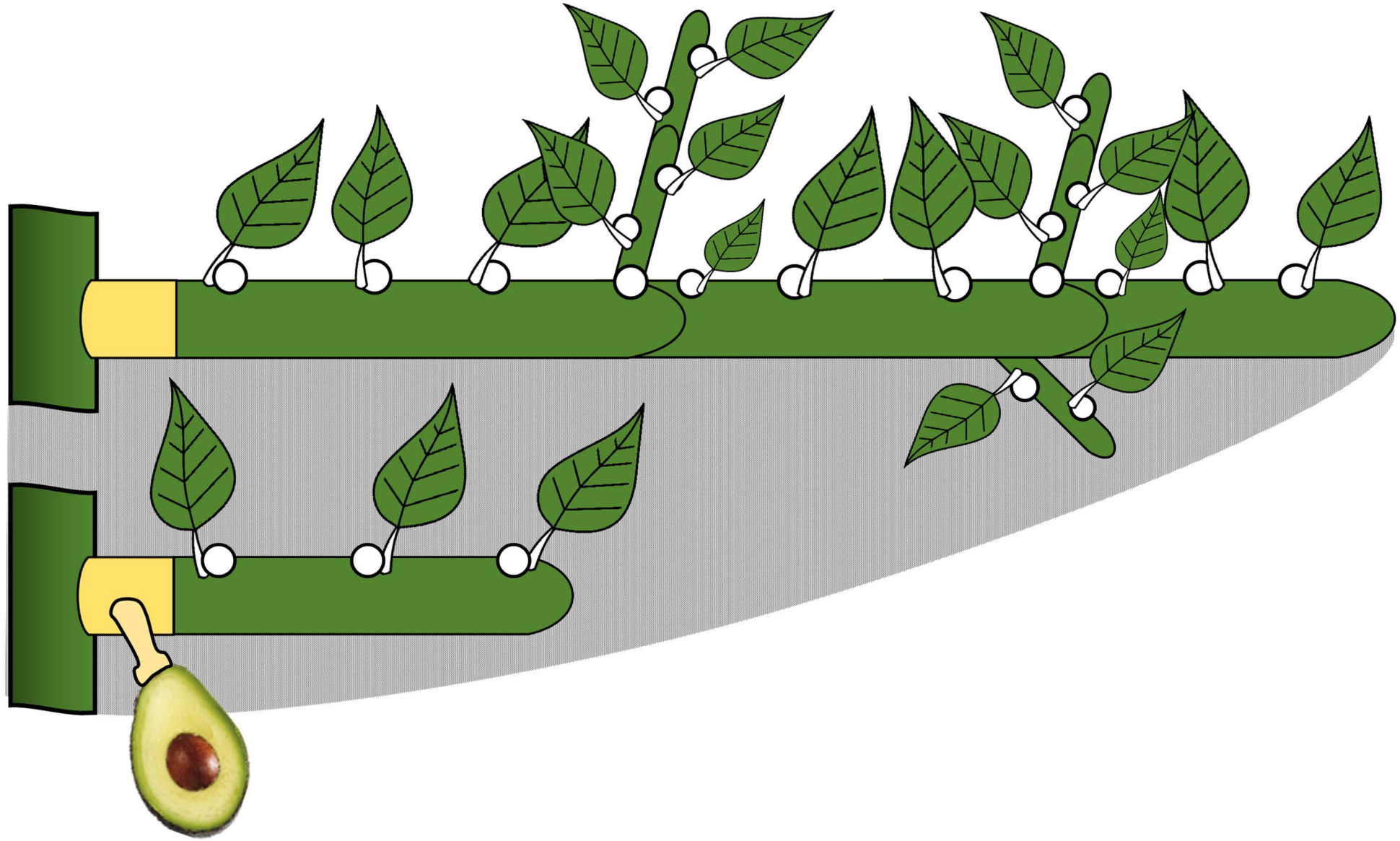
INCREASED VEGETATIVE COMPLEXITY :

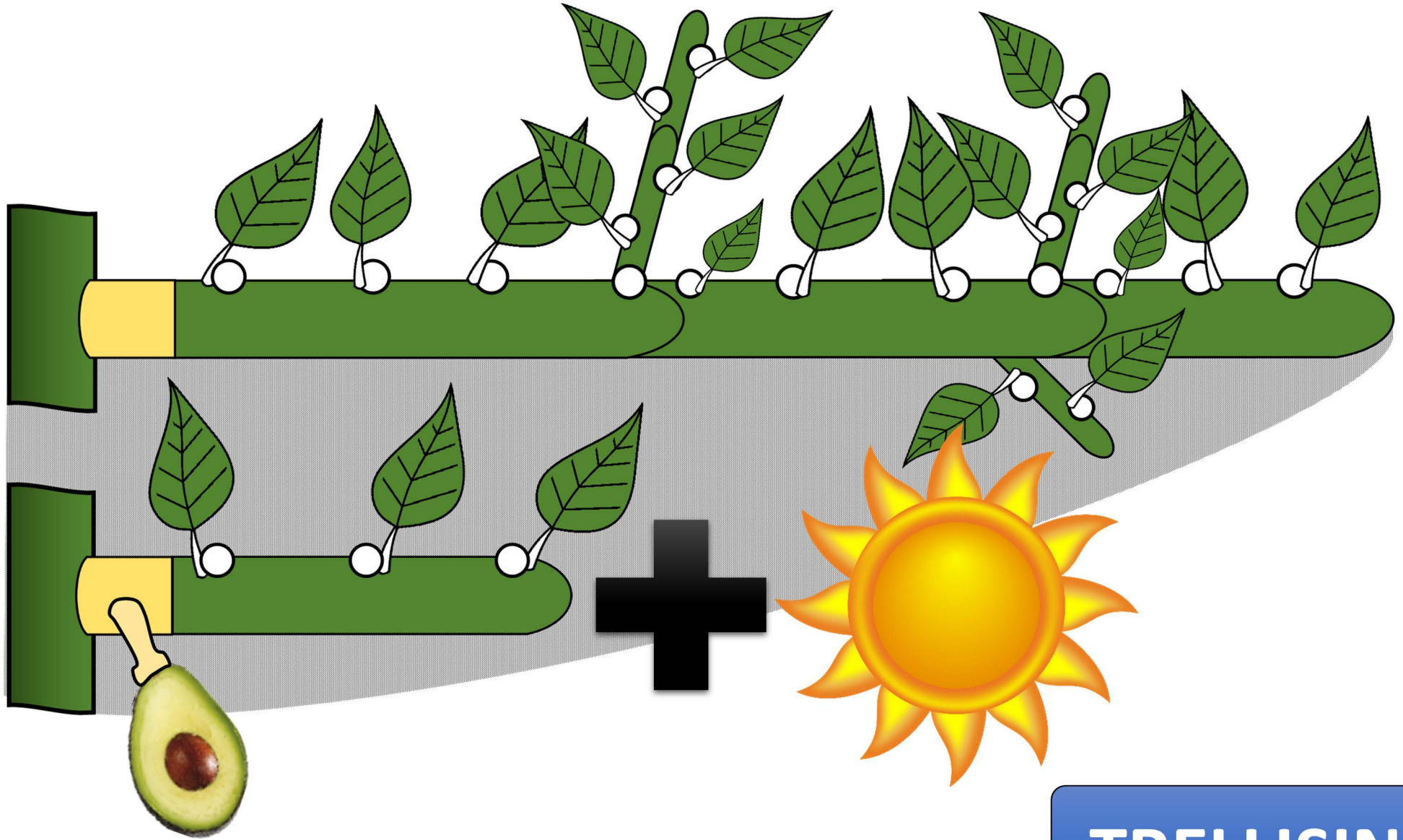
MORE FLUSHES and MORE LATERALS

EVEN ON FRUITING SHOOTS

CAN YOU INCREASE VEGETATIVE COMPLEXITY ON TRADITIONAL ‘HASS’ ?


‘HASS’

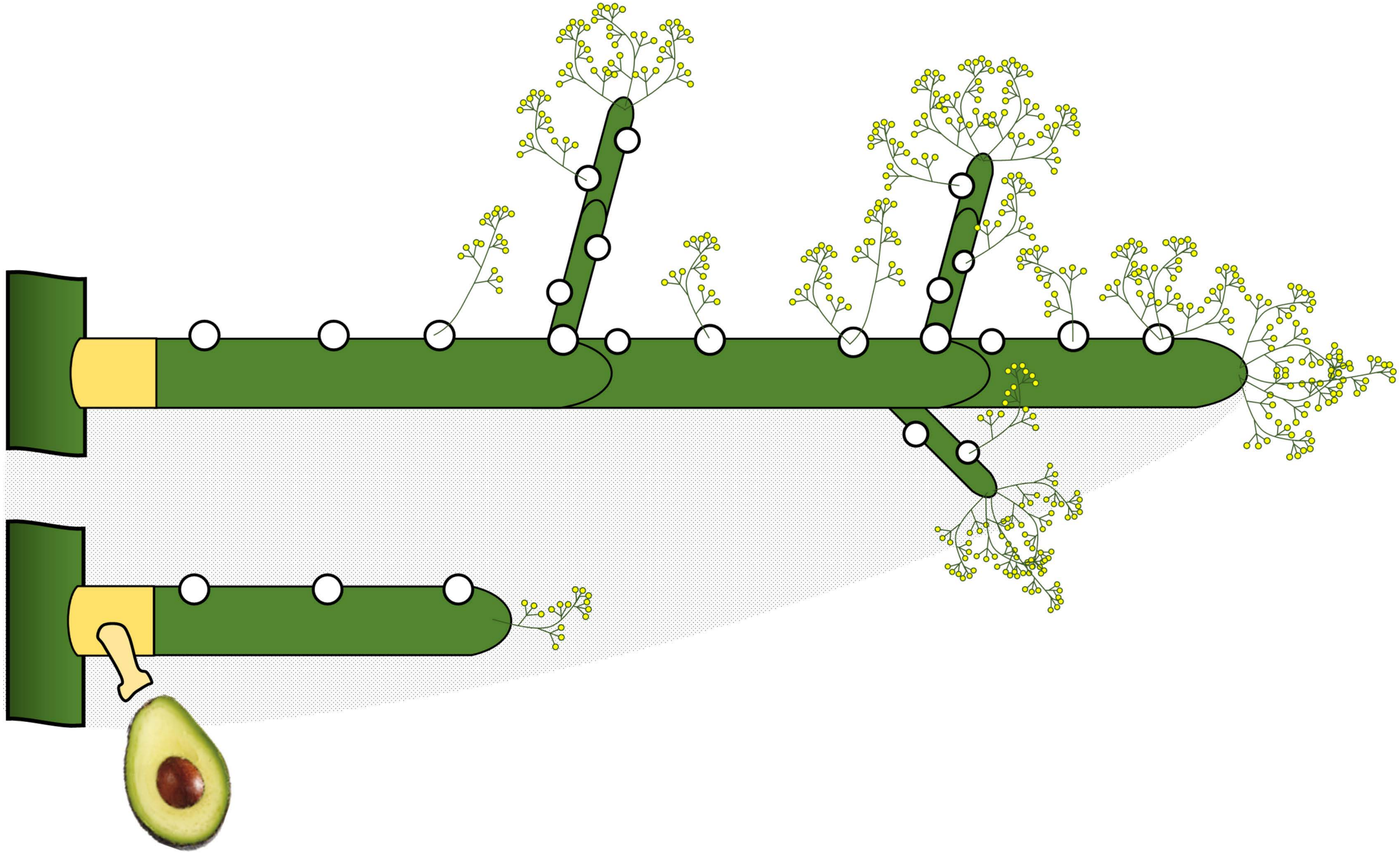




TRELLISING

WHY DO YOU WANT COMPLEXITY?

TO INCREASE CHANCES OF HAVING INFLORESCENCES



FRUITS EFFECTS ON REPRODUCTIVE GROWTH

64 %

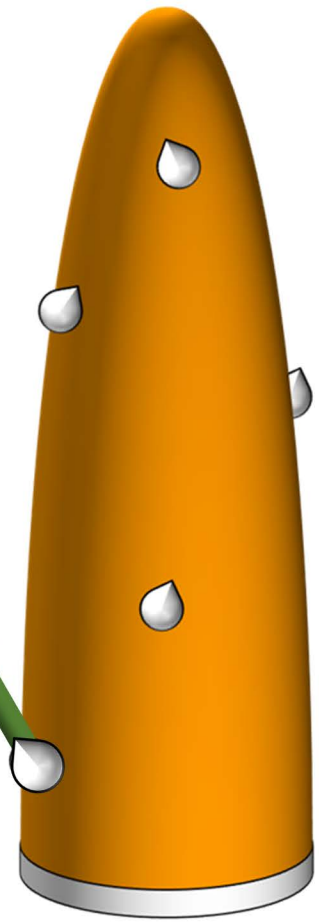
54 %

54 % of buds released

61 %

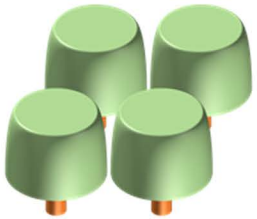
59 %

15 % of buds released

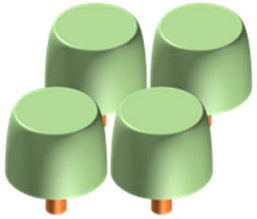


TRELLIS RELATES TO MORE FRUITS WITH MALUMA ?

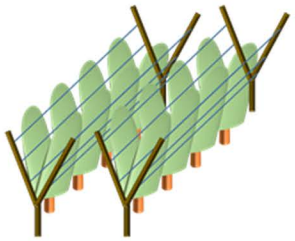
1 FRUITS PER SHOOT



HASS: 85 %



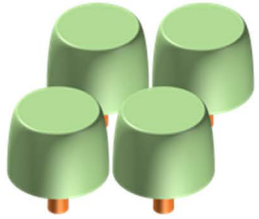
MALUMA: 90 %



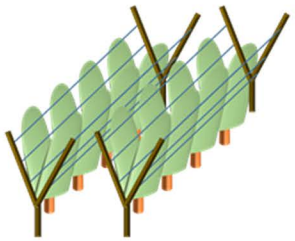
MALUMA TRELLIS: 75 %

2 FRUITS PER SHOOT

HASS: 12 %



MALUMA:10 %

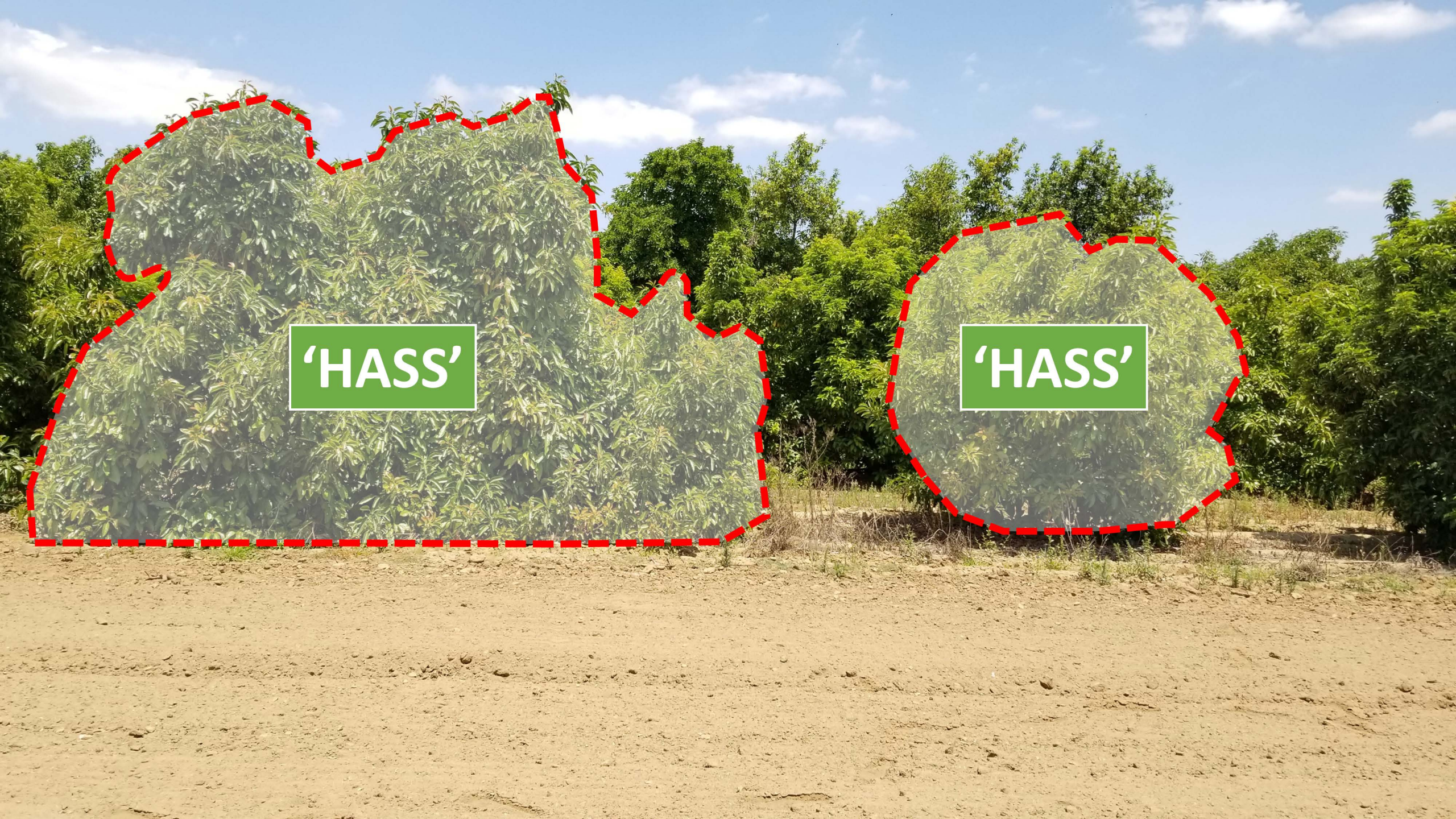


MALUMA: 22.5 %

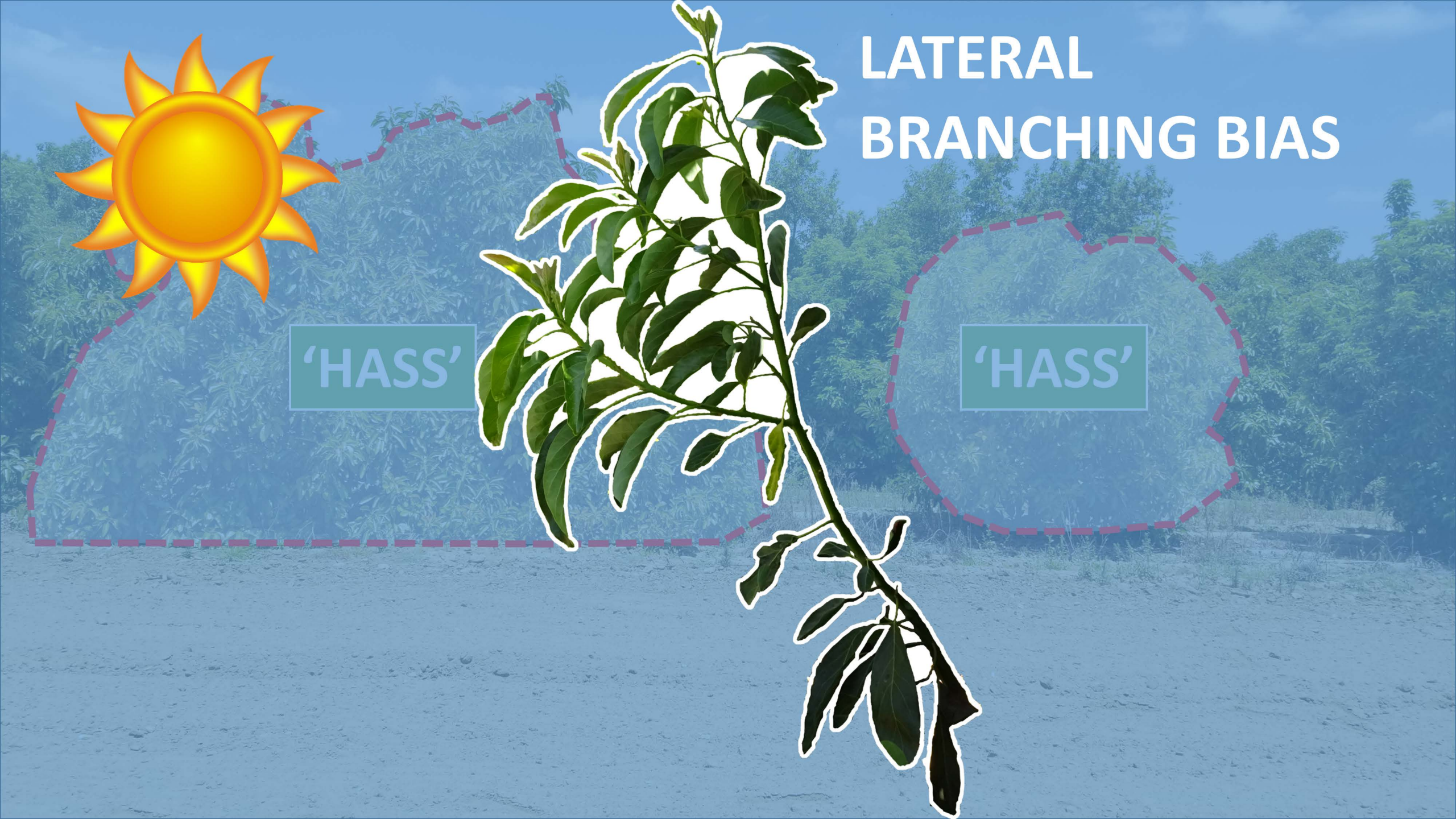

Pictures by Zander Earnst

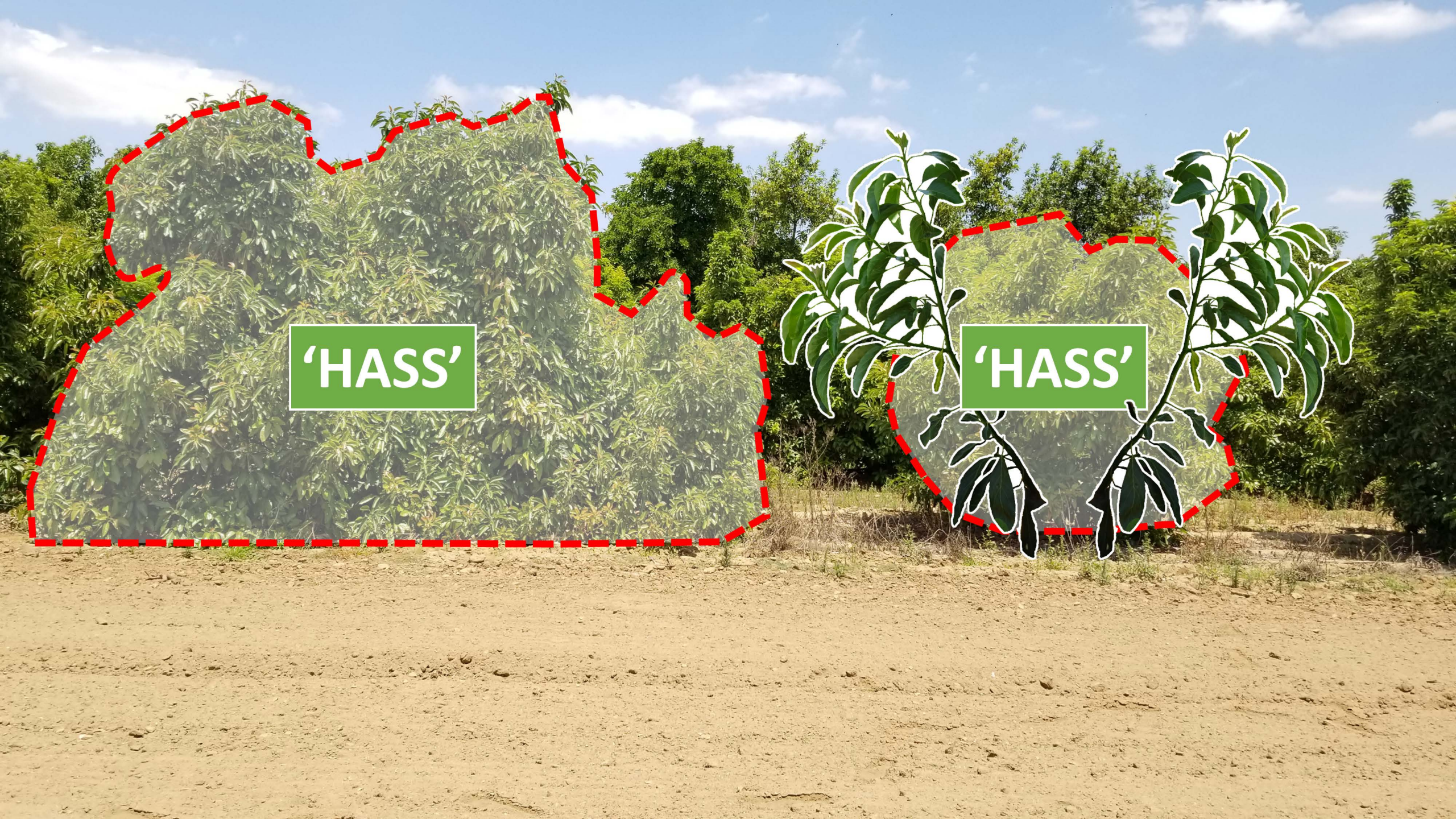
To finish:

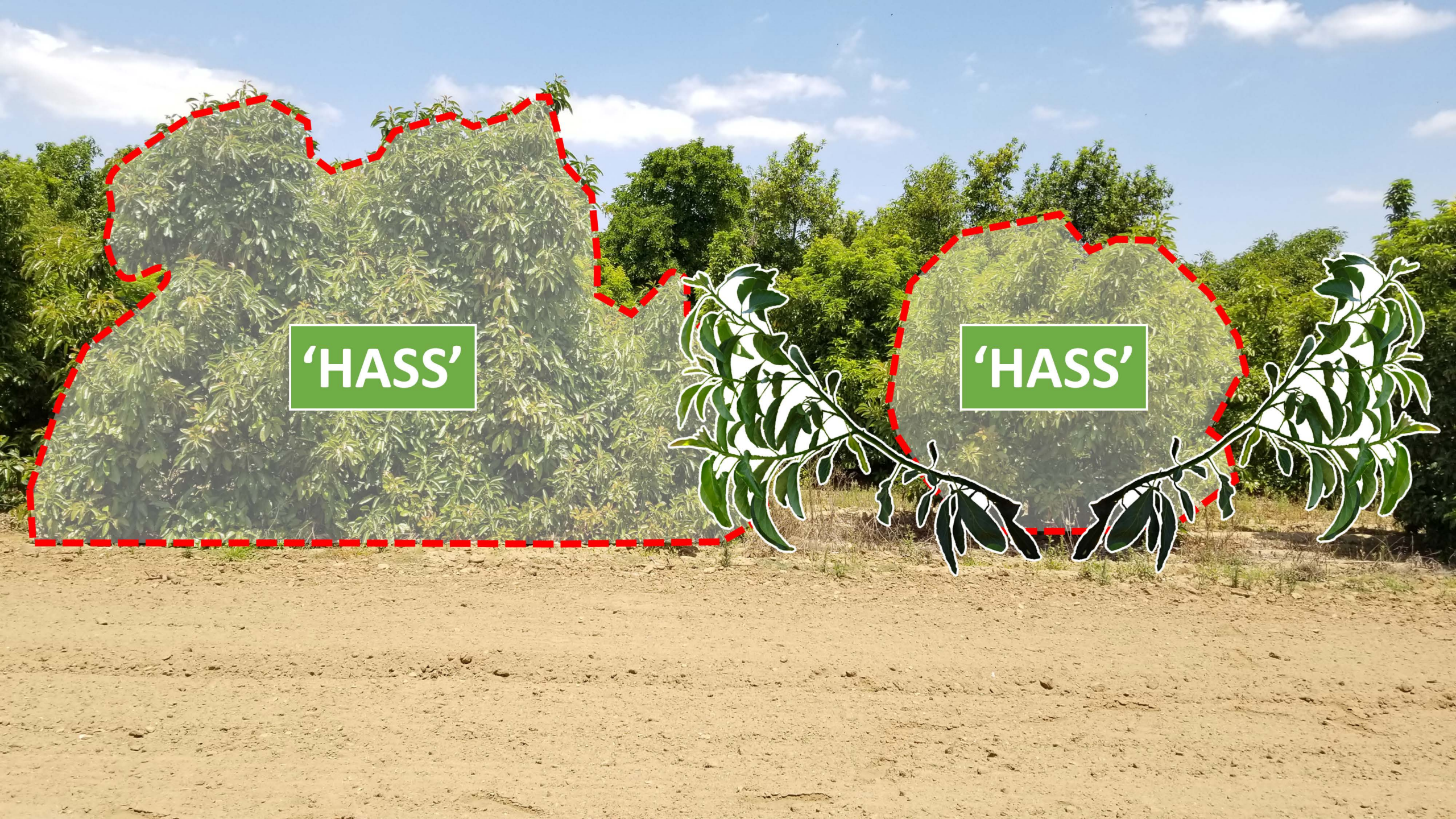
A BIT ABOUT SUNLIGHT RESPONSES IN THE FIELD


‘HASS’
‘HASS’

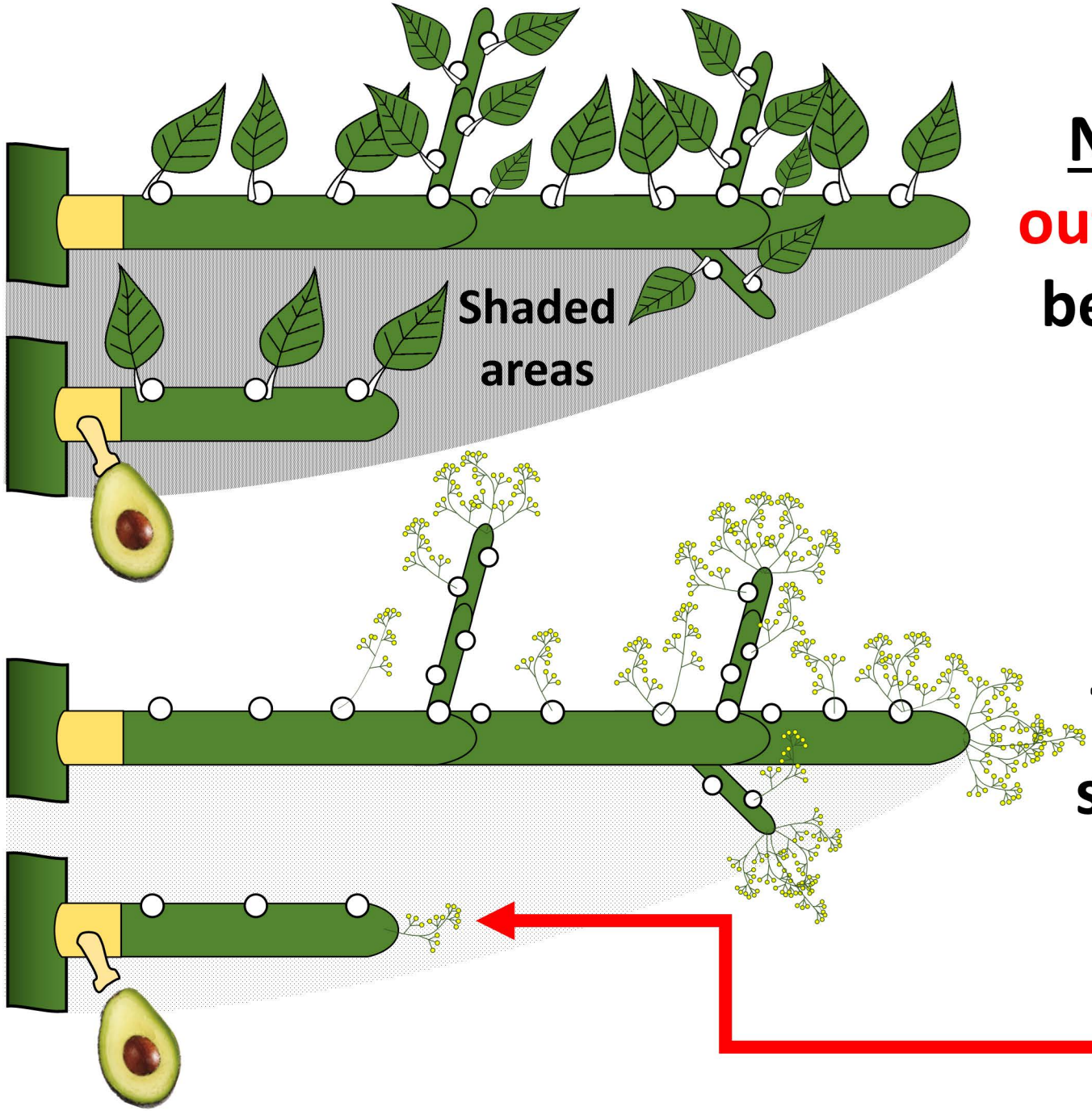
LATERAL BRANCHING BIAS




‘HASS’
‘HASS’


‘HASS’
‘HASS’

SUMMARY



<u>Non</u> fruiting shoots complexity outgrows <u>fruiting</u> ones which then become part of the inner canopy

The vegetatively simpler fruiting shoots become poor contributors of the succeeding season reproductive potential

ALL ABOUT INCREASING THE CHANCES

ACKNOWLEDGEMENTS

The Hofshi Foundation

Enhancing the world's avocado knowledge

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'HASS'
Thank you !
'MALUMA'
‘CARMEN'