AgraForUm

THE NATURAL PLANT STRENGHENING COMPANY
Natural solutions for the future

ComCat®

let us learn from the nature

WHAT ARE THE MAIN ATTRIBUTES OF ComCat®

- **Increases <u>crop yields</u> by means of:**
  - **root growth stimulation (improved uptake of nutrients)**
  - **flower bud formation**
  - **Photosynthesis and respiration stimulation**
  - **Improvement of plant health (via stimulation of the plant's own defence response towards abiotic and biotic stress factors)**
  - **Improves the <u>quality</u> of agricultural products**

Genetic potential – **STRESSES**
(Temp, drought, diseases, herbicide damage)

RISK REDUCTION

Crop yield

DROUGHT RISK

At-HP01 gene

0   30   60   240 min

- Plants treated with *ComCat*®
- **RT-PCR analysis**
- Identified unique gene expressed within 30 min

◄ AtHP01

-**Promotor analysis** of AtHP01 showed that gene is also activated by drought

[VISSER, B. 2004]

THE MAIN ATTRIBUTES OF ComCat®?

1. **RISK REDUCTION:**

   • **Plant strengthening**

2. **CROP YIELD**

   • **Photosynthesis**

   • **Respiration**

ComCat:
six efficacy on fruit

1、Promote seedling nursery & Improve graft survival rate

2、Stronger root growth

3、Protecting flowers and fruits

4、Rescue injury fertilizer or pesticide damage

5、Induced tolerance towards stress situations

6、Improve fruit quality and longer shelf life

Citrus

More flowers

faster fruit growth

ComCat

Control

improve graft survival rate

Control   ComCat

ComCat® induce strong root system

Control

ComCat

New
roots

Bigger root
system

Citrus

Ripple Hill – Patensie 2011

Satsumas

Parameter	Control	ComCat
Yield (t/ha)	**74.2**	**76.69 (+ 2.5 ton ha^{-1})**
% Rejected fruit	5.61	4.89
% Fruit larger than 64 mm	**40.61**	**46.18**
% Fruit smaller than 55 mm	59.39	53.82
Sugar content (^{o}Brix)	9.15	9.23
Acid content	0.977	0.985
Sap %	56.64	56.48
Sugar : Acid ratio	9.40	9.42

Saamfarm – Jan Kempdorp
Delta Valencia

Parameter	Control	ComCat + AnnGro
Yield (t/ha)	**66.08**	**70.72 (+ 4.6 ton ha^{-1})**
% Large fruit (70 mm +)	**14.6**	**18.6**
% Med fruit (64 – 70 mm)	46.6	45.6
% Small Fruit (64 mm -)	38.8	35.8
Sugar content (^{o}Brix)	9.34	9.50
Acid content	1.54	1.55
Sap %	48.00	48.10
Sugar : Acid ratio	6.08	6.08

Visual

Control

ComCat

Citrus Grading

Grapes
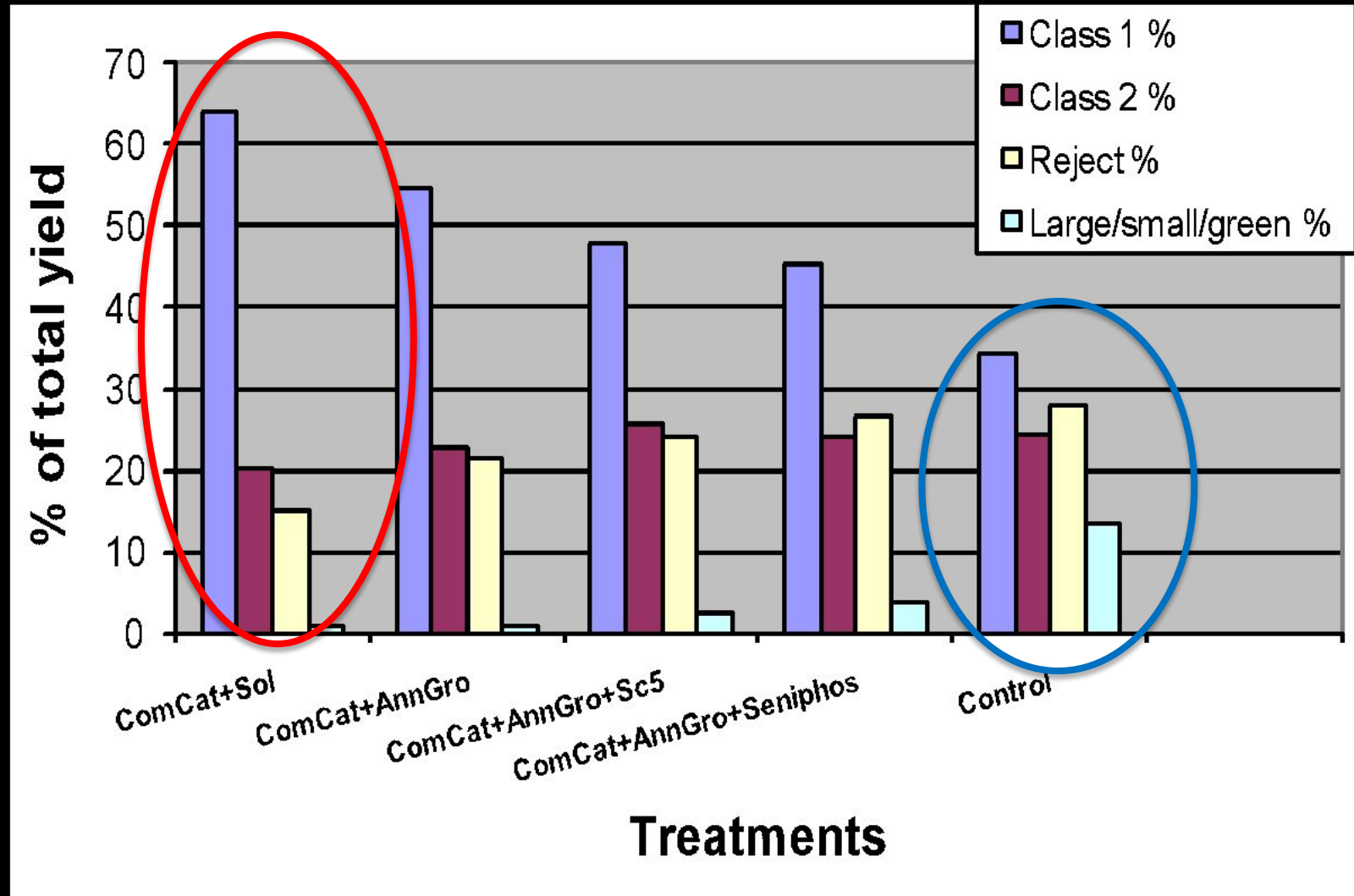

ComCat   ComCat + GA   GA

Effect on Bunch elongation and Grape fruits size
Gimcheon, Korea

MBA

Control

ent

Campbell early

- Application
- Shoot elongation(5/24)
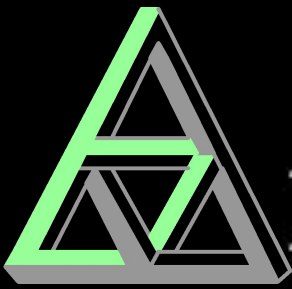- Young fruit stage(6/20)
- After covering(7/16)

- Mixture : Heawang

Result: It has increased number of fruits per bunch and size of fruits as well. During lab analysis we also recorded higher sugar content with compare to control

Yield on Merlot (wine grape)

PARAMETER	CONTROL	ComCat + ANNGRO
Acid content	5.3	5.2
Sugar (balling)	23.45	23.85
pH	3.49	3.56

Yield on Cabernet Sauvignon (wine grape) Stellenbosch

PARAMETER	CONTROL	ComCat + ANNGRO
Acid content	5.9	5.6
Sugar (balling)	22.2	21.4
pH	3.54	3.45

Louisvale – Stellenbosch

Chardonnay

Parameter	Control	ComCat + AnnGro
Yield (t/ha)	**9.47**	**10.11 (+ 0.6 ton ha^{-1})**
Sugar content (^{o}Balling)	18.3	18.53
pH	3.22	3.19
Acid content	11.3	10.95

Apples

Effects of ComCat spray for Apple(Fuji) at Prebloom stage

Higher no. of Flower per branch

Stigma receptive increased

Result: After treatment, we recorded more number of flowers per branch; Higher stigma receptivity therefore significantly higher fertilization rate as compare to control

Effects of ComCat by spraying at Prebloom stage {In Apple(hong-ro)}

Control   ComCat

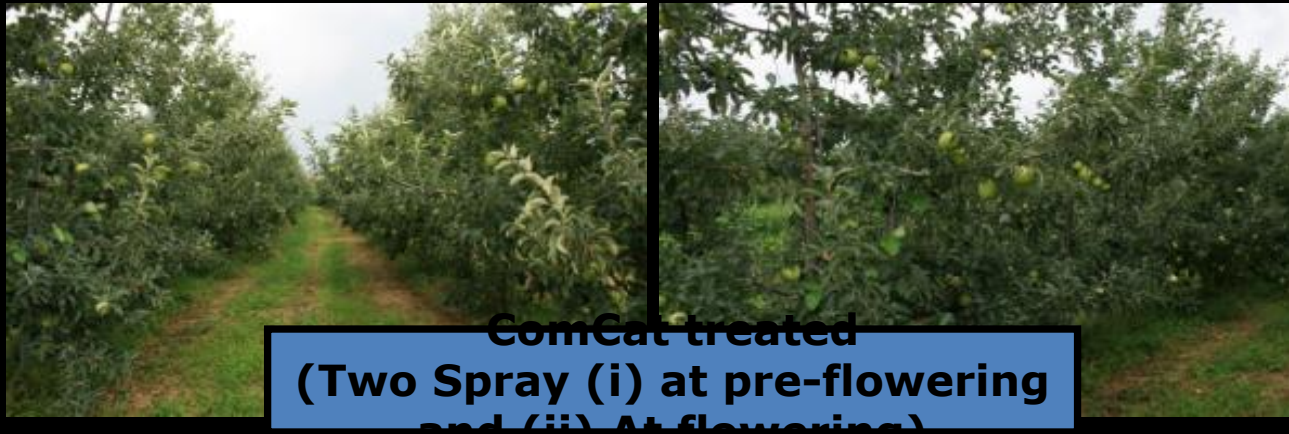**Flower stalk is thicker and longer;.**

Fertilization excellent; Regulated, big fruit

Result:
We recoded thicker and longer flower stalk and observed very high fertilization rate with uniform & Big fruit size with respect to Control

Effect on Chilling injury at flowering stage in Apple (Hong-Ro)

Control

ComCat treated
(Two Spray (i) at pre-flowering
and (ii) At flowering)

Major Effect of Chilling injury:-

(i) Deterioration of fertility, quality and fruit set

(ii) New leaf atrophy and less leaf number per fruit were recorded

(iii) Heavy yield loss

Result: ComCat spray increased number of leaves; leaves size and fertility, hence fruit setting recorded significantly higher in comparison to control

Effect on number of fruits per plant and fruit size

10% bigger fruit size recorded

- Application:
  - falling flower (10~15days),
  - early enlargement stage (3 times)
- Mixture: Heawang

Improvement of marketability of apple   due to excellent size of apple

Result: We recorded excellent fruit color development, bigger fruit size by 10%; hence ComCat increased the marketability of Apple

Apples

APPLES – ROYAL GALA – CERES

PARAMETER	CONTROL	ComCat+ANNGRO
Yield (ton/ha)	**61**	**67.6** (+ 6.6 ton ha^{-1})
Fruit diameter (mm)	**66.4**	**68.8**
Starch (%)	83	92.5
Fruit colour	3.45	3.8
Fruit firmness	7.3	7.53

APPLES – ROYAL GALA – CERES

PARAMETER	CONTROL	ComCat+ANNGRO
Avg fruit mass (g)	131	147 (+ 16 ton ha^{-1})
Fruit diameter (mm)	65.9	68.2
Starch (%)	20	23
Fruit colour	2.5	2.5
Fruit firmness	8.5	8.6

APPLES – ROYAL GALA – CERES
Koelfontein

PARAMETER	CONTROL	ComCat FRUIT (4x100g)
Yield (kg/tree)	**32.8**	**35.38**
n Fruit/tree	**304.8**	**324.8**
Avg Fruit mass (g)	107.9	109.43
Red	8.25	6.2
Brix	12.21	12.75
Rejected fruit (%)	**42.5**	**17.5**
Anti-oxidant activity (mmoles Trolox equivalent/g FW	8.43	8.88

Pear

Effect of ComCat
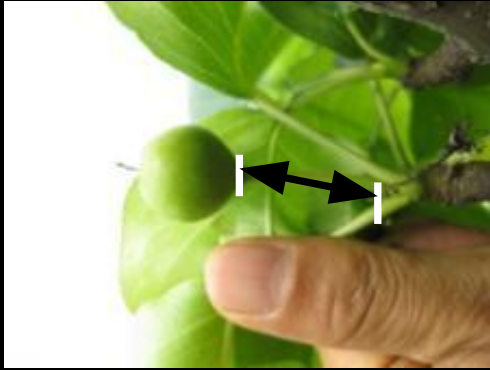
Control

Lucky Plant / ComCat

Control   ComCat

Result:
We recorded longer and thicker fruit stalk, reduction in fruit drop incidence and higher yield per plant with uniform fruits

Pear

Koelfontein – Ceres 2009

Flamingo

Parameter	Control	ComCat + AnnGro
Yield (t/ha)	23.43	37.3 (+ 14 ton ha^{-1})
Diameter (mm)	58.71	60.36
Fruit mass (g)	125.29	134.97
Fruit per tree	126.88	188.13
Firmness (kg)	7.23	6.87

Fairfield – Ceres 2009

Forelle

Parameter	Control	ComCat + AnnGro
Yield (t/ha)	35.2	48.6 (+ 13.6 ton ha^{-1})
Amount per tree	158.75	218.75

Koelfontein – Ceres 2010

Packhams Triumph

Parameter	Control	ComCat + AnnGro
Yield (t/ha)	38.79	43.59 (4.8 ton ha^{-1})
Amount fruit per tree	203.25	233.05
Firmness (kg)	6.98	6.97

Cherry

Cultivar Sweetheart Old trees

Control

ComCat
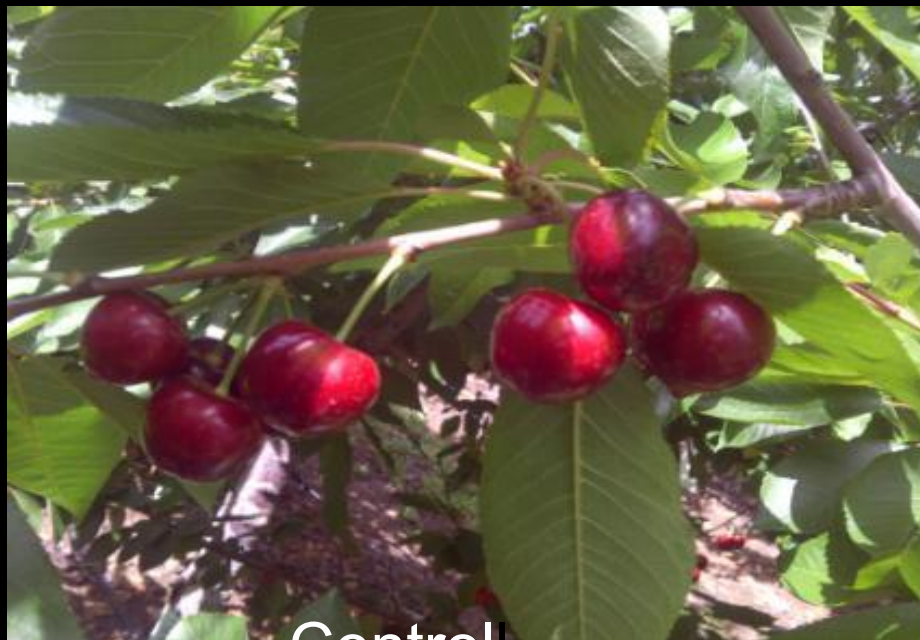
Control

ComCat

Cultivar Bing

Control
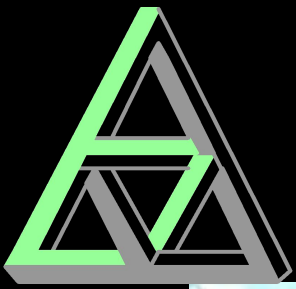

ComCat

Control

ComCat

MANGO

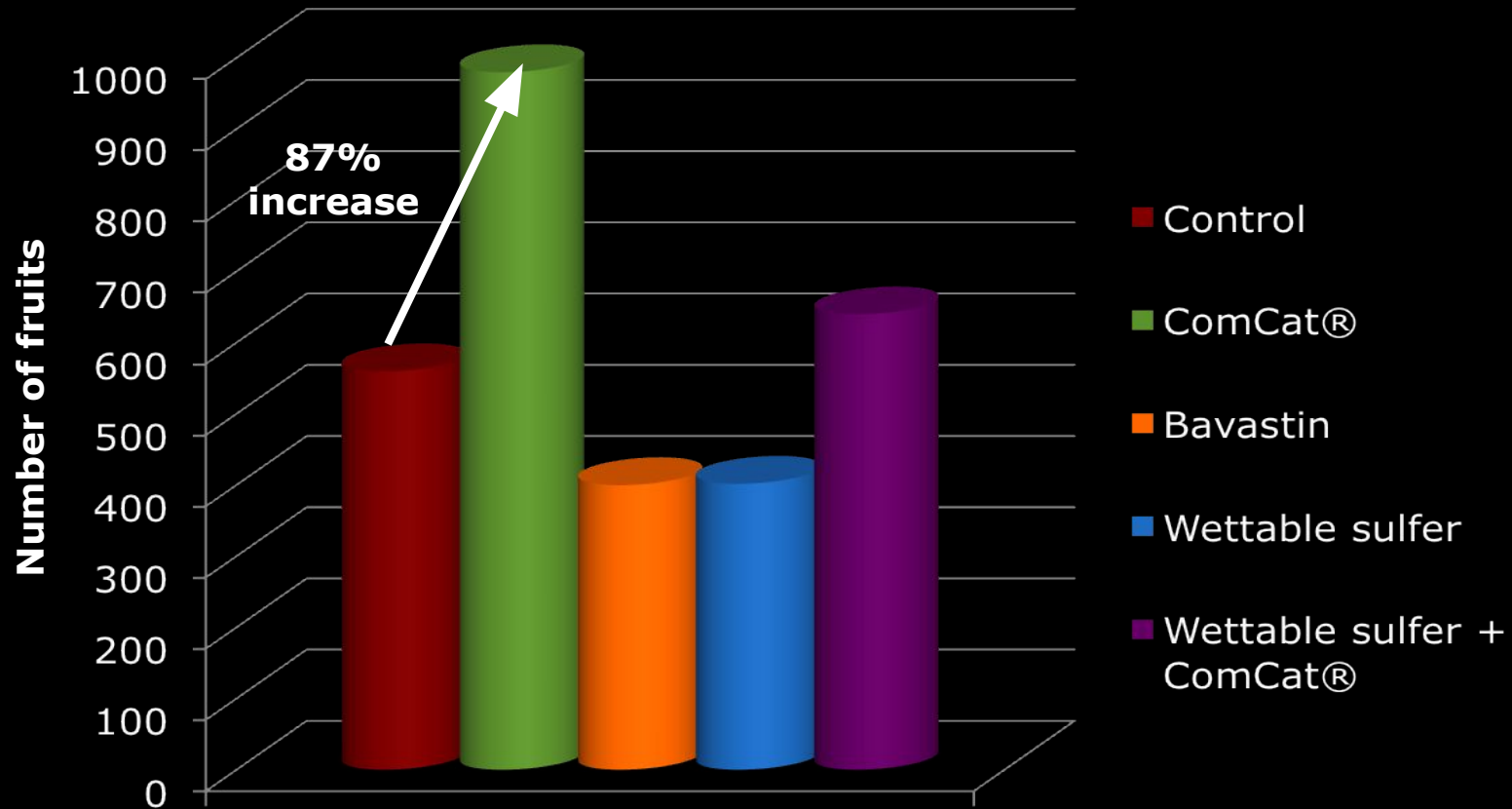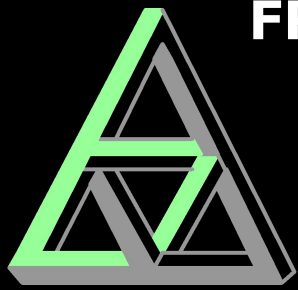Control   ComCat

Visual Differences

FRUIT NUMBER, YIELD, MEAN FRUIT WEIGHT AND SOLUBLE SOLIDS OF LOCAL MANGO CULTIVAR SPRAYED WITH FUNGICIDES AND ComCat® AT BISIDIMO, EASTERN HARARGHE

| Treatments	Year						
	Second season				Thrid season		
	Fruit number/ tree	Fruit yield (kg/tree)	Mean fruit wt (g)	% TSS, (day 10)	Fruit number/ tree	Fruit yield (kg/tree)	Mean fruit wt (g)
BB	269.2	42.9	158.2	7.2	360.4	53.4	151.6
BB/CC	434.0	55.6	128.2	7.7	404.2	57.5	152.8
CA	510.0	73.5	148.8	6.5	314.4	41.7	135.4
CA/CC	724.2	95.6	132.8	6.5	823.6	109.2	133.8
ComCat	1026.2	141.4	137.4	6.1	923.2	127.3	138.8
Control	470.8	76.5	169.6	6.4	357.0	62.3	179.2
WS	410.2	64.7	156.2	6.5	378.8	54.4	145.8
WS/CC	617.2	79.1	130.6	7.6	485.4	65.4	136.2
SE±	35.81	4.85	7.25	0.70	38.44	4.33	7.35
LSD(0.05)	131.2*	17.76*	26.58*	NS	140.9*	15.88*	26.95*
CV (%)	18.16	17.43	14.13	17.69	21.49	17.17	14.18
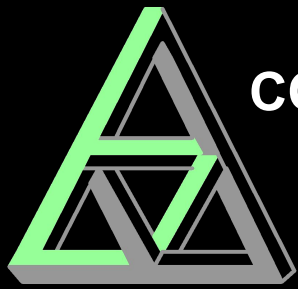
EFFECT OF DIFFERENT FUNGICIDE, ComCat® AND COMBINATION OF THE TWO PREHARVEST TREATMENTS ON YIELD AND NUMBER OF FRUITS AT HARVEST
Forth season

Treatment	Fruit Yield (Kg/tree)	Mean fruit weight (kg) (± SD)	Mean fruit number /tree (± SD)
Bavastin (B)	24	60.58 ± 40.38	402.30 ± 108.23
ComCat	46.9	71.54 ± 20.20	654.40 ± 123.56
Wateable sulfur (WS)	19.5	57.02 ± 8.26	342.80 ± 155.45
Calcein (CA)	20.7	59.43 ± 10.37	351.00 ± 61.27
B + CC	22.6	57.28 ± 29.88	396.50 ± 63.56
CA + CC	31.3	68.96 ± 37.04	461.25 ± 132.96
WS + CC	23.1	59.51 ± 25.29	390.20 ± 97.76
Control	17.4	56.22 ± 19.99	311.40 ± 81.92

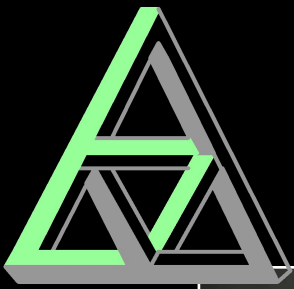# Litchi

Visual Differences
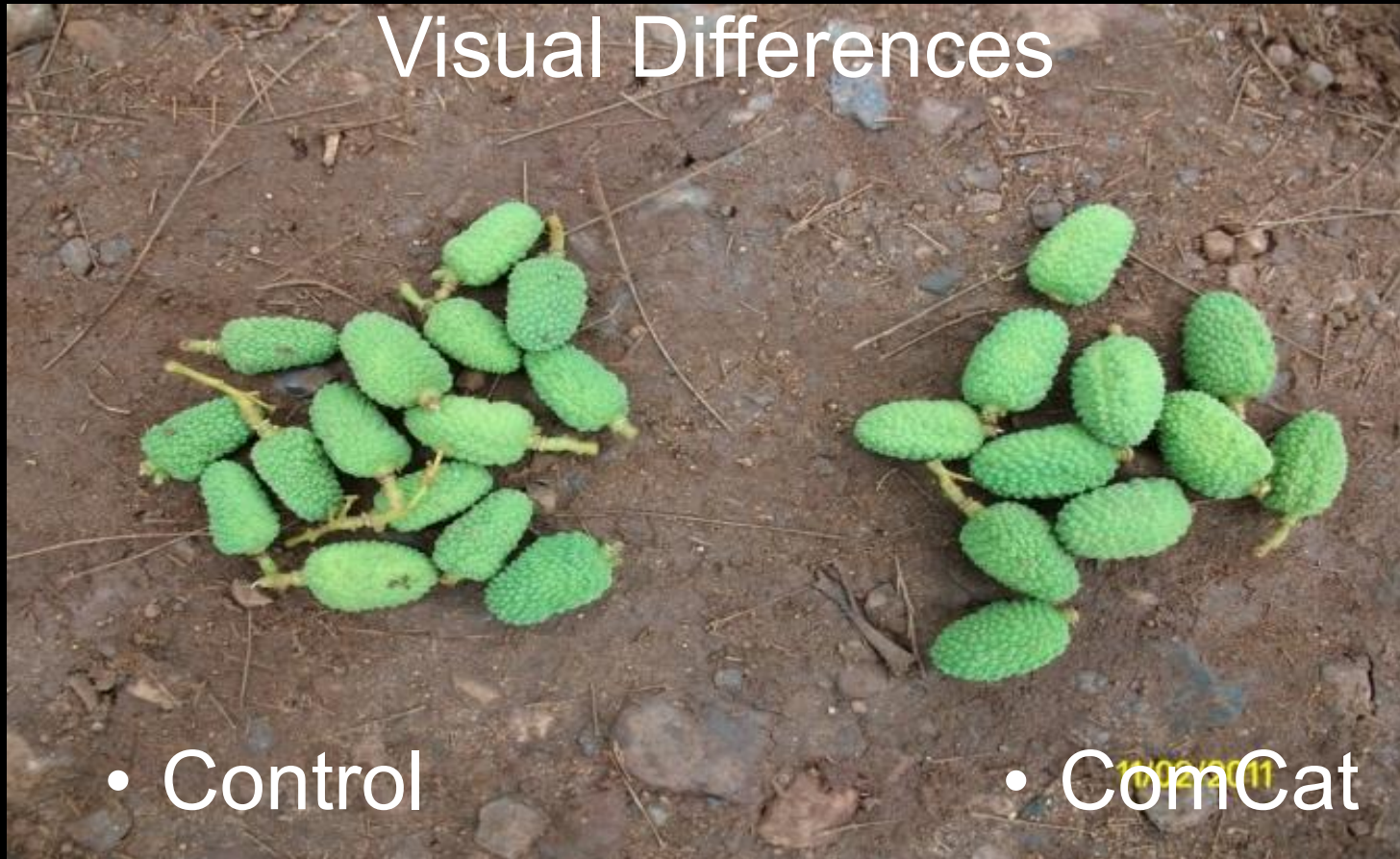
• Control

• ComCat

ComCat increased yield and fruit size of Lychee by 30%.

- Control

- ComCat

PAW-PAW

PAW-PAW
ETHIOPIA Seedling growth

Control

Lucky Plant / ComCat®
treated

PAW-PAW
WHITE RIVER
LOWVELD South Africa

PaW-PAW 2009:

ComCat increased pack-out percentage of Paw-Paw by 25%.

Figs

FIGS South Africa RISSEEUWE BDY /PLOT

TREATMENT	YIELD Control	YIELD ComCat	Rejected Control	Rejected ComCat	Class 1 Control	Class 1 ComCat	Class 2 Control	Class 2 ComCat
ComCat Fruit (200g/ha) (x2) + 0.5L Zumsil (x2)	2.48	2.89 + 16.5%	409.2	349.8 - 17%	65.98	110.6 +67.6	1319.9	1413.5 +7.1%