



## Citrus & Subtropicals

**Cultigrow** is a completely organic blend of natural plant flavonoids derived from bitter orange extract together with plant derived organic acids formulated in a proprietary process to achieve a very stable, most consistent and highly soluble formulation.

**Cultigrow** is registered with Act 36 (1947) as a foliar nutritional spray for crops. The product contains a blend of flavonoids in an organic carbon complex. The product activates metabolic processes enhancing essential plant functions and plant health.

### General plant benefits

- Enhanced Photosynthesis and increased secondary metabolite levels enable the plant to improve production of carbohydrates.
- Increased root exudates stimulate activity of beneficial rhizosphere organisms and improves colonization of soil fungi on roots, while suppressing harmful organisms.
- A healthier rhizosphere ensures more effective uptake of nutrients and water\*.
- Treated plants are healthier, more resistant to pest and disease attacks and able to perform better under sub-optimal conditions.

\* Soil conditions such as compaction, water logging or hydrophobicity may result in moisture stress which may have a negative influence on soil microbial population and uptake of nutrients. It is important to optimise soil moisture and water penetration in irrigated crops to obtain maximum benefit from the healthier rhizosphere created through a Cultigrow program. Soil moisture can be optimised under irrigation with a soil conditioner containing **OROWET**® Technology

### Some of the key benefits

Crop health  
Rhizosphere health  
Mineral uptake  
Fruit quality  
Marketable Yield  
Sustainable production



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### Benefits for citrus:

- Improves flowering, fruit set, fruit retention and fruit size.
- More even colour development and ripening.
- Improved juice values of citrus at harvest (see note on soil moisture).
- Improves uptake of nutrients such as calcium.
- Well suited to integrate with biological soil inoculants.
- Suitable for use in organic orchards.
- Increased profitability.

### Long term benefits:

Cultigrow should be considered as a long term program to improve soil and tree health, fruit quality, production efficiency and pack-out percentage of your orchard. Although significant benefit is derived in the first year of treatment, benefits escalate after the second and third year of treatment. Especially in orchards with alternate bearing problems, it is important to consider a 3 to 4-year program to optimise production.

### Application (3 sprays per season):

	Spray 1	Spray 2	Spray 3
<b>Growth stage</b>	Within 21 days after start of spring flush	80-100% Petal drop	1 month later
<b>Cultigrow dosage (bearing trees)</b>	500 ml/ha with each application		
<b>Water volume</b>	Ensure good coverage throughout the tree canopy. Do not exceed a rate of 500 ml / ha irrespective of final tank concentration.		

### Notes:

- Cultigrow is compatible with standard fungicides and insecticides and growth regulators. Contact your representative for the latest information on compatibility.



# The effect of C4L - maize



Image credit: Pixabay

Research findings by an independent agricultural research service provider

# Forage maize -Materials and methods

**2 foliar applications were made:**

1) 100 ml/ha 4-6 leaf

2) 150 ml/ha pre-tassel

# Forage maize - Results

Mass of plants in kg (20 plants)	
C4L (x2)	Untreated control
12.95	10.19
11.85	9.15
<b>Average</b>	
<b>12.40</b>	<b>9.58</b>

**30% increase  
in biomass**

# Forage maize - Results

Mass of cobs in kg (20 plants)	
C4L (x2)	Untreated control
6.40	4.90
5.85	4.75
Average	
<b>6.13</b>	<b>4.83</b>

**27% increase  
in cob weight**

**UNTREATED CONTROL**



**TREATED WITH C4L**



# Seed maize -Materials and methods

**2 foliar applications were made:**

1) 100 ml/ha 4-6 leaf

2) 100 ml/ha pre-tassel



# Seed maize - Results

Tons per ha	
C4L (x2)	Untreated control
40.68	34.70

**17.2% increase  
in yield**

Contact us



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# **Cereal / Silage**

Compiled by  
AN Hanekom  
Pro Africa Crop Care

# Yield / ha

50ml vs 100ml C4L Seed dressing

**Effect of C4L as a seed dressing in combination Wetcit on Silage feeding value of Oats (Variety: SSH 491)**

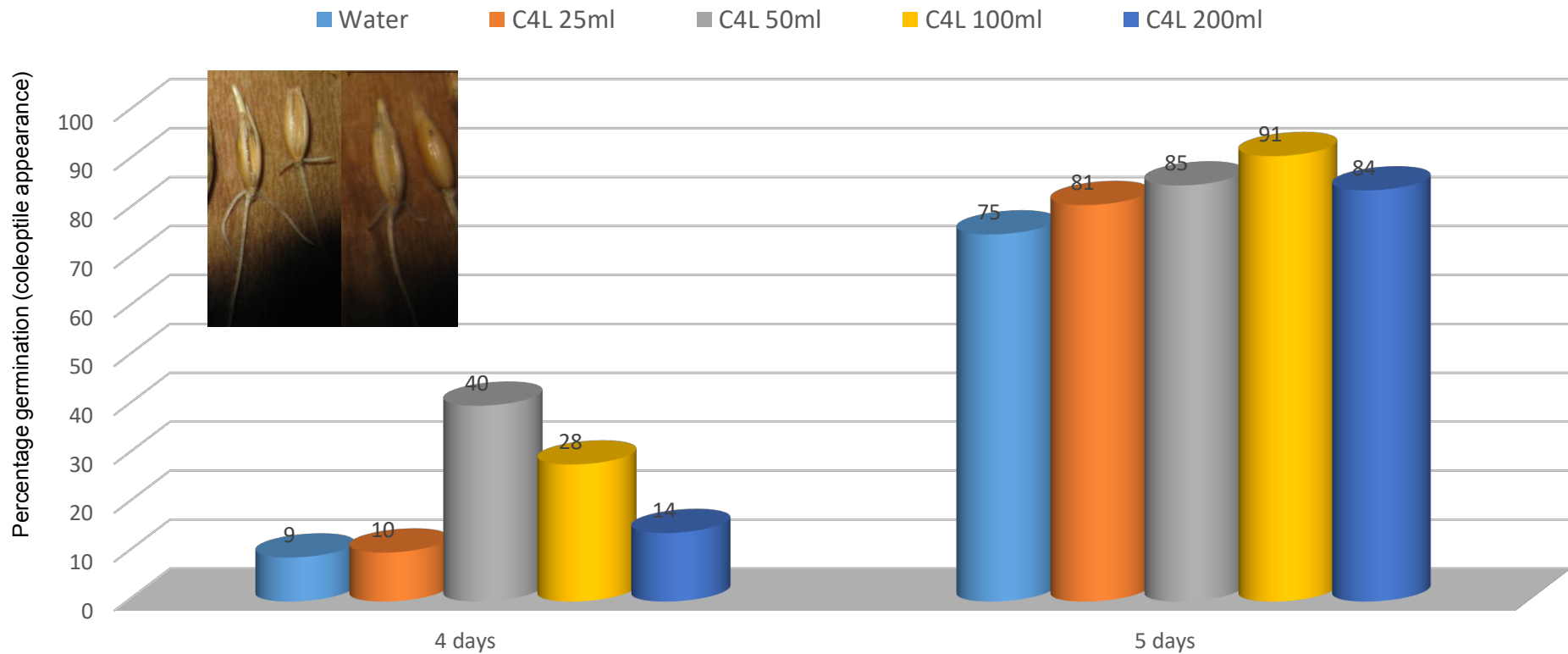
1. seed germination,
2. coleoptile and root mass
3. field emergence

**A seed dressing plus foliar sprays on:**

4. yield / ha (biomass)
5. Silage feeding value.



# Coleoptile germination (%) 4 and 5 days post treatment of SSH 491 oats seeds.



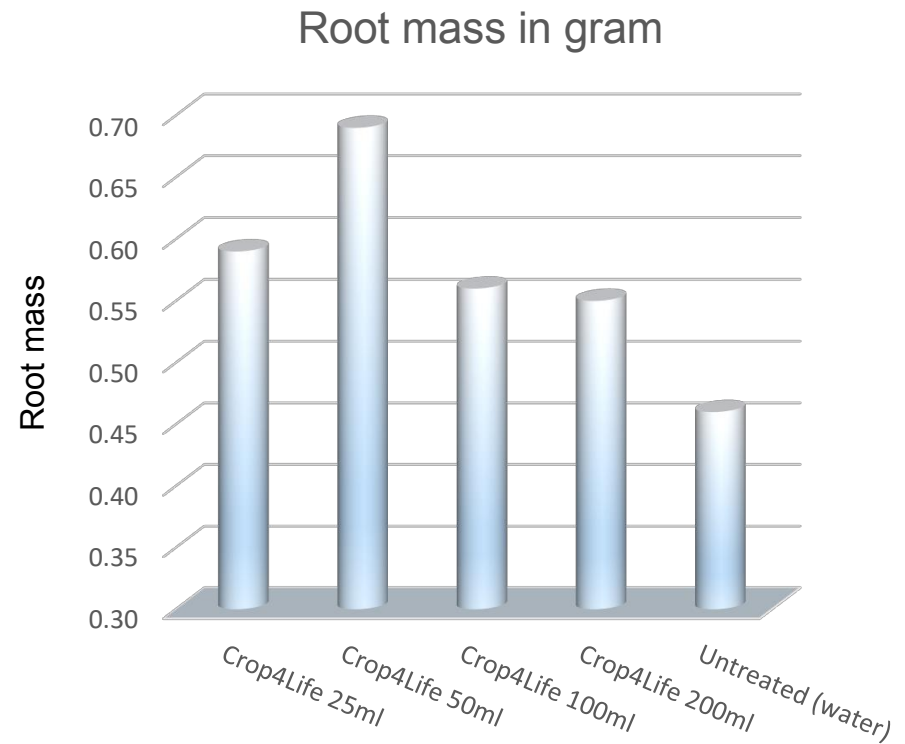
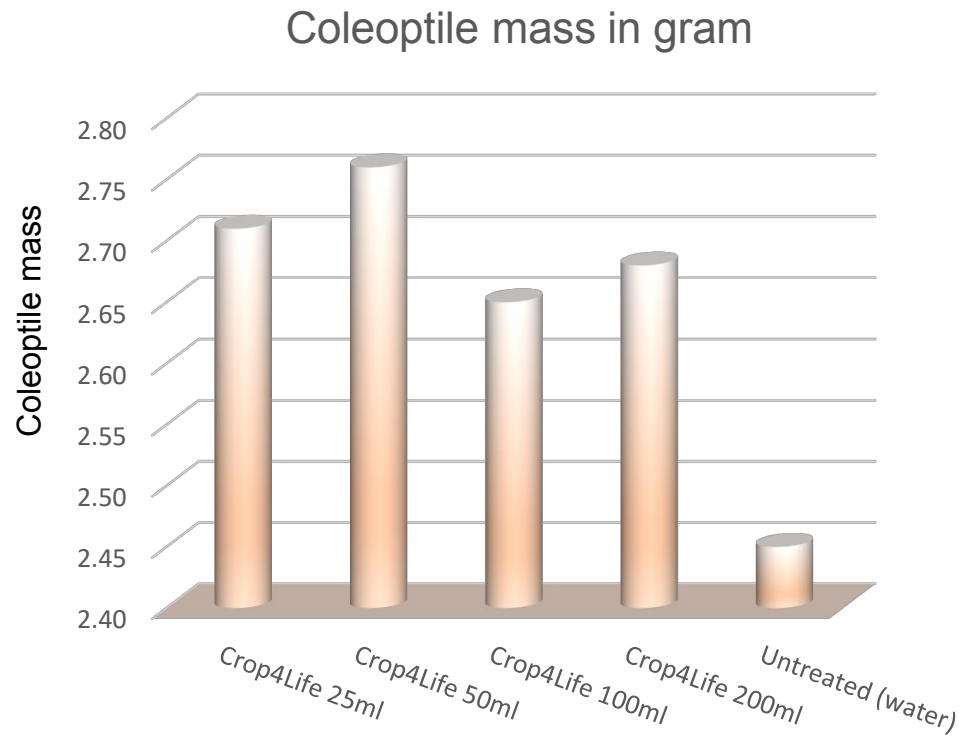
Dates:

Seed treated: 4 April 15

Incubation: 12 April 15

Assessment: 16 (4 days) & 17 April 15 (5dae days)

**C4L seed dressing at different concentrations per 100kg seed on coleoptile and root mass (g) per 20 oats seeds (SSH 491) after incubation at 18-20°C for 15 days.**



## Germination counts: plants / m<sup>2</sup>

Untreated: 276

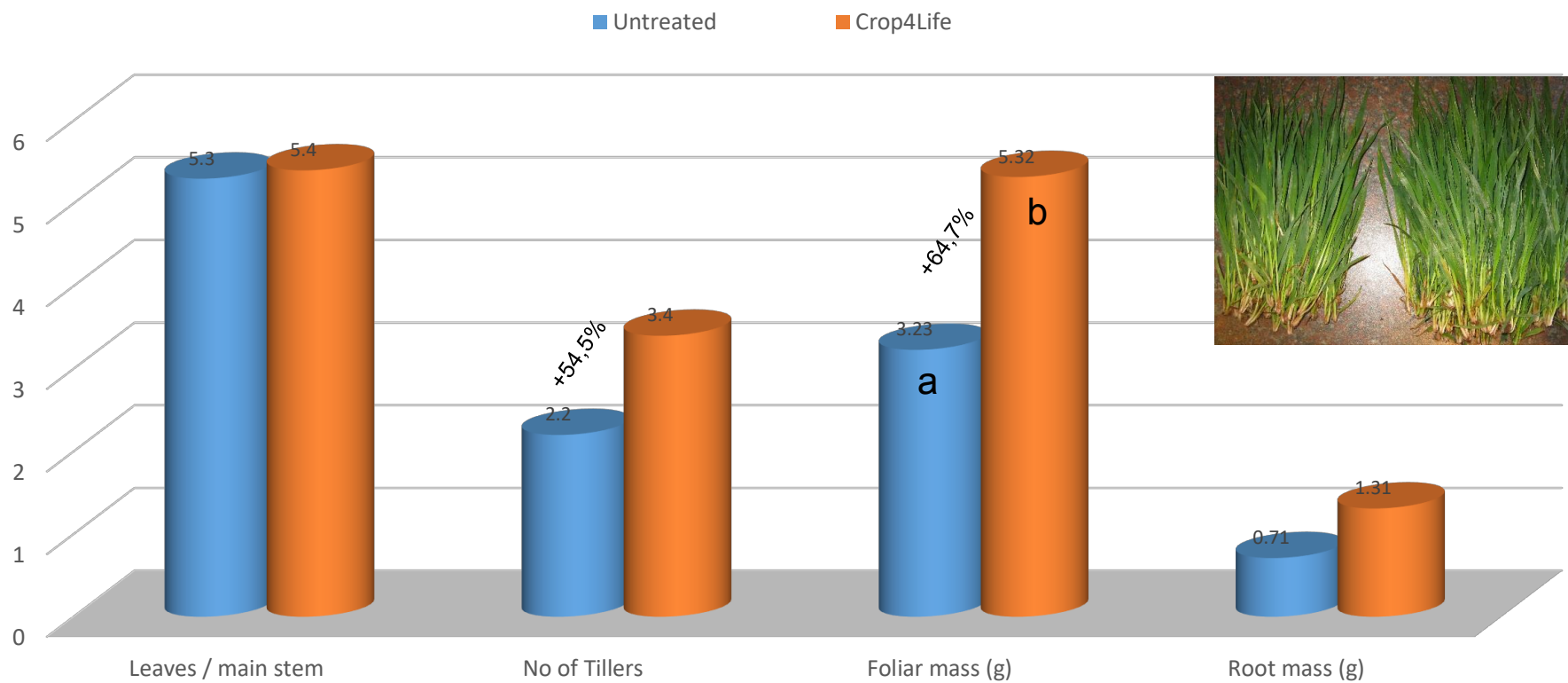
C4L: 362

Change: +31,2%





# C4L seed dressing (50ml / 100kg seed) on the number of leaves on the main stem, number of tillers per plant, mean foliar mass and root mass per plant at 5-6 leaf stage.



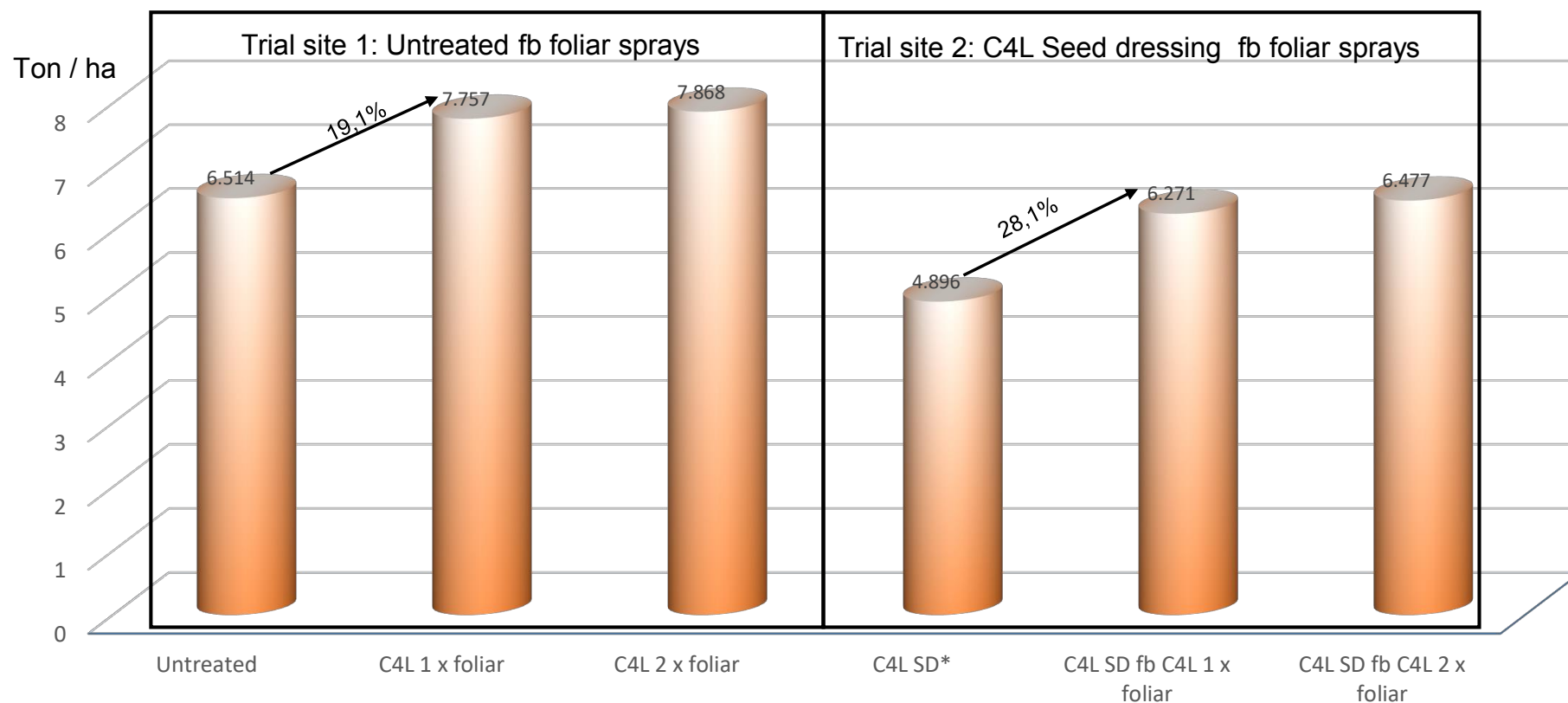
## End of 2015 : Oats condition at harvest

Untreated

C4L (50ml) SD fb foliar spray at 4-6 leaves



## Effect of C4L as a seed dressing and or foliar sprays on the biomass per ha at the soft dough stage.



\*SD: Seed Dressing (50ml C4L / 100kg seed)

C4L foliar sprays at 100ml in 279L water / ha at 4-6 leaf stage and again 38 days later (flag leaf)

Harvest at soft dough stage( Note: 75% of plants were adversely affected by extreme drought conditions prior to harvest)

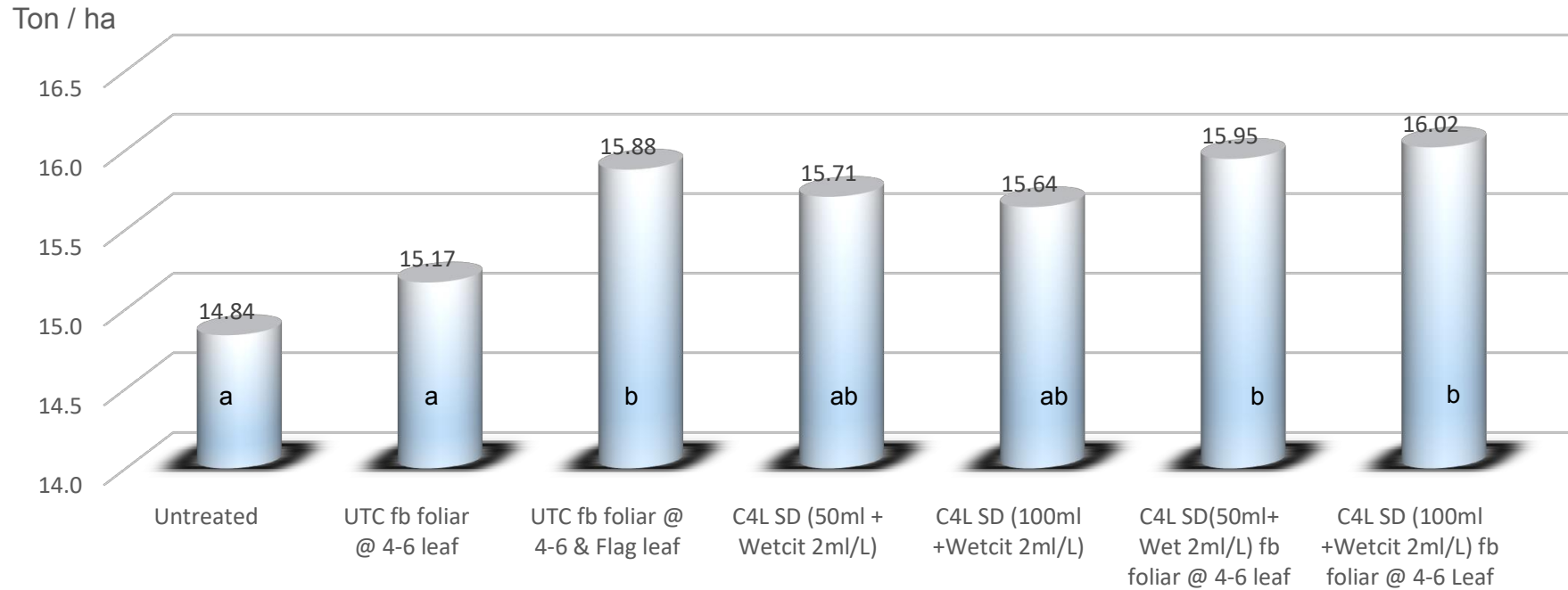
The latter could have played a major role in the lack of performance of the second C4L foliar application.

Lack of performance in Trial site 1 due to heavy weed infestation which was not evident in Site 2

**Beginning of 2016**



## Different treatments on the total biomass of oats in ton / ha (Silage trial Malmesbury 2016)



NOTE: All untreated plots (from left to right: TMs 1,2 & 3) planting density: 100kg / ha

All SD treated plots (TMs 4, 5, 6 & 7) planting density: 70kg / ha

## Preparation for silage



Randomly select 2k kg fresh plant material (total plant) for each of the four replicates. These plants were mixed and between 0,5-06,75kg were sent to Quantum Analytical Services for the determination of the dry matter (DM) content as well as dry matter percentage (DM%). This was done within 4 hours after collection of plants.



An aliquot of approximately 1.25kg of plant material (200-250 plants) were randomly selected and chopped with the aid of pruning shears to 15-20mm pieces. After thoroughly mixing an aliquot of 1kg was mixed with bacteria and enzymes (SIL-AL 4x4 WS) commercially used for the preparation of silage.

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Comparison Report

25 November  
2015

John French

Malmesbury Silage samples

**151101                      151102                      151103                      151104                      151105**

Guidelines (based on Dairy TMRs)	Average		Sample Values	Sample Values	Sample Values	Sample Values	Sample Values
	Average	Recom.					
2-Pool total (mL gas/g DM)	182.1	168.4-190.9	169.293	155.581	172.943	170.141	171.213
Fast Pool (mL gas/g DM)	69.4	59.5-73.7	62.869	56.443	67.761	74.305	70.668
Slow Pool (mL gas/g DM)	112.7	103.9-121	106.427	99.111	105.266	96.091	100.709
FP, % Total	37.8	37.8-41.1	37.071	36.215	39.112	43.595	41.202
SP, % Total	62.2	58.9-65.7	62.931	63.770	60.930	56.536	58.882
FP Rate (%/h)	19.13	16.51-21.08	20.489	22.770	20.373	16.777	23.556
SP Rate (%/h)	4.58	>4.28	3.714	4.092	3.661	3.323	3.817
Starch Rate (%/h)	11.32	10.32-12.14	8.473	9.092	8.793	8.649	9.805
Time to Max FP (h)	2.92	2.5-3.25	2.575	2.318	2.575	3.176	2.232
Time to Max SP (h)	11.24	<11.24	13.696	12.435	13.864	15.292	13.359
ADMD (%)	70.53	>67.23	60.459	51.817	59.346	55.327	54.134
TDMD (%)	79.85	>77.6	68.170	60.387	68.178	63.782	62.254
MBM (mg/g DM)	110.6	97.2-121	90.952	96.778	101.397	96.659	93.104
PF	4.52	4.33-4.82	4.074	3.927	3.988	3.792	3.678
Total VFA (mM)	23.57	21.01-25.57	21.659	19.357	20.800	23.147	20.041
Acetic Acid (% of total)	42.01	39.7-44.3	55.474	49.974	52.176	54.045	51.021
Propionic Acid (% of total)	33.55	32.04-34.95	23.157	26.320	24.469	23.913	24.343
Buytric Acid (% of total)	18.18	15.6-19.28	19.408	21.067	20.880	20.753	22.426
C2:C3	1.27	1.15-1.37	2.396	1.899	2.132	2.260	2.096

**Comparison  
Report John**

**NEO Flanekom**

**January Report 2017**

	Average	Recommended	Sample1	Sample2	Sample3	Sample4	Sample5	Sample6
			161203	161204	161205	161206	161207	161208
<b>Guidelines (based on Dairy TMRs)</b>			<b>Submitted Sample Values</b>	<b>Submitted Sample Values</b>	<b>Submitted Sample Values</b>	<b>Submitted Sample Values</b>	<b>Submitted Sample Values</b>	<b>Submitted Sample Values</b>
2-Pool total (mL gas/g DM)	182.1	168.4-190.9	167.48	161.80	171.90	151.90	169.42	159.47
Fast Pool (mL gas/g DM)	69.4	59.5-73.7	54.29	61.25	60.65	48.92	60.89	51.70
Slow Pool (mL gas/g DM)	112.7	103.9-121	113.19	100.55	104.25	89.87	114.68	108.51
FP, % Total	37.8	37.8-41.1	32.49	37.85	35.37	40.50	36.42	32.35
SP, % Total	62.2	58.9-65.7	67.98	62.14	64.84	59.24	63.69	68.13
FP Rate (%/h)	19.13	16.51-21.08	16.73	17.02	16.62	16.56	16.08	15.72
SP Rate (%/h)	4.58	>4.28	3.89	4.27	3.78	3.97	3.84	3.73
Starch Rate (%/h)	11.32	10.32-12.14	7.35	9.42	8.91	9.99	8.94	7.80
Time to Max FP (h)	2.92	2.5-3.25	4.05	3.24	3.24	3.31	3.38	3.65
Time to Max SP (h)	11.24	<11.24	14.04	12.27	13.71	13.15	13.60	14.10
ADMD (%)	70.53	>67.23	54.82	53.62	46.58	52.91	49.14	52.48
TDMD (%)	79.85	>77.6	62.91	61.68	55.19	61.47	57.32	60.89
MBM (mg/g DM)	110.6	97.2-121	93.52	93.96	110.45	103.61	100.21	101.34
PF	4.52	4.33-4.82	3.83	3.89	4.05	4.10	4.17	3.87
Total VFA (mM)	23.57	21.01-25.57	19.96	19.46	14.49	17.81	17.60	18.53
Acetic Acid (% of total)	42.01	39.7-44.3	41.94	40.55	36.26	40.53	41.08	43.40
Propionic Acid (% of total)	33.55	32.04-34.95	41.99	38.99	44.00	39.08	40.92	38.30
Buytric Acid (% of total)	18.18	15.6-19.28	14.19	17.36	19.07	17.76	15.82	15.53
C2:C3	1.27	1.15-1.37	1.00	1.04	0.82	1.04	1.00	1.13



## Summary: 2015 & 2016 season

Guidelines (based on Dairy TMRs) Total Mixed Rations for dairy cattle	Average values	Min. to Max. values recom- mended	2015 Untreated	2016 Untreated	2016 Foliar sprays @ 4-6 & Flag Leaf stages	2015 C4L SD (0,5ml / 1kg seed)	2016 C4L(0.5ml/1kg seed) + Wetcit (2ml/L)	2015 C4L SD fb foliar (4-6 leaf)
2-Pool total (ml gas /g DM)	182,1	168.4 - 190.9	155.58	166.73	161.80	169.30	168.52	173,03
Fast Pool (FP)(ml gas /g DM)	69,4	59.5 - 73.7	56.44	54.29	61.25	63.87	63.65	67.76
Slow Pool (SP)(ml gas /g DM)	112,7	103.9 - 121	99.11	113.19	100.55	105.43	104.87	105.27
FP (% Total)	37,8	37.8 - 41.1	36.22	32.49	37.85	37.73	37,76	39.17
SP (%Total)	62,2	58.9 - 65.7	63.77	67.98	62.14	62.27	62,23	60.84
FP Rate (%/h)	19,13	16.51 - 21.08	22.77	16.73	17.02	20.49	16.56	20.37
SP Rate (%/h)	4,58	> 4.8	4.090	3.89	4.27	3.71	3.97	3.66
Starch Rate (%/h)	11,32	10.32 - 12.14	9.090	7.35	9.42	8.47	9.99	8.79
Time to Max FP(h)	2,92	2.5 - 3.25	2.32	4.05	3.24	2.56	3.31	2.58
Time to Max SP(h)	11,24	< 11.24	12.44	14.04	121.27	13.70	13.15	13.86
ADMD (%)	70,53	> 67.23	51.82	54.82	53.62	60.46	52.91	59.35
TDMD (%)	79,85	> 77.6	60.39	62.91	61.68	68.17	61.47	68.18
MBM (mg/g DM)	110,6	97.2 - 121	96.78	93.52	93.96	90.95	103.61	101.40
PF	4,52	4.33 - 4.82	3.93	3.83	3.89	4.07	4.10	3.99
Total VFA (mM)	23,57	21.01 - 25.57	19.36	19.96	19.46	21.66	17.81	20.80
Acetic Acid (% of Total)	42,01	39.7 - 44.3	49.98	41.94	40.55	55.47	40,53	52.18
Propionic Acid (% of Total)	33,55	32.04 - 34.95	26.32	41.99	38.99	23.16	39.08	24.47
Buytric Acid (%of Total)	18,18	15.6 - 19.28	21.07	14.19	17.36	19.41	17.76	20.88
C2:C3	1.2	1.15 - 1.37	1.90	1.00	1.04	2.4	1.04	2.13
Percentage per colour group:			15,8%	15,8%	36,8%	47,4%	47,4%	47,4%
			47,4%	31,6%	42,1%	15,8%	15,8%	15,8%
			36,8%	52,6%	21,1%	36,8%	36,8%	36,8%

DM: Dry Matter  
 TDMD: Total Dry Matter Digestibility  
 MBM: Meat & Bone Meal  
 PF: Palatable feed  
 VFA: Volatile Fatty Acids

# Recommendations:

**Seed treatment:** Allow at least 10 days between seed dressing and plant

**Stock solution: Wetcit/Orosorb:** 2ml per liter water

**Wheat, Barley, Oats, Lupines, Canola:** 50ml C4L per 100kg seed

**Water volume / 100kg seed:**

Wheat and Barley: 800-1000ml

Canola, Lupines and Oats : 400-600ml

**Foliar sprays without seed treatment:**

Wheat, Barley and oats: 4-6 leaf as well as flag leaf stage 150ml / ha

Lupines: 3- 5 leaf stage followed by a 2<sup>nd</sup> spray at emergence of 1<sup>st</sup> flower heads on the main stem 150ml / ha

Canola: Apply 1st spray at the rosette to start of stem extension (bolting)stage. 150ml/ha

A 2nd spray to be applied 28 days later. 150ml/ ha

**Seed treatment followed by foliar sprays:**

Wheat and Barley Oats: 5-6 leaf stage: 100ml / ha

Lupines: Emergence of flower heads on main stem 100ml / ha

Canola: Between rosette stage and stem elongation 100ml / ha

C4L Wetcit combination is compatible with the following Seed dressing products:

Fungicides: Galmano FS, Redigo FS, Flite FS, Ingwe FS,

Insecticides: Gaucho FS, Tirado FS & Supergaurd EC

**DO NOT COMBINE WITH SEED DRESSING NUTRIENTS**