

**The effect of timed applications of COMCAT on vining peas, combining peas and  
spring field beans.**

**Agraforum UK Ltd**

**2012**

**PGRO Research Limited**

**Timed applications of COMCAT on vining peas, combining peas and spring field beans.**

**For:** **Agraforum UK Ltd**

**Date of project:** 2012

**Date of report:** September 2012

**Objectives:** To evaluate the effectiveness of COMACT (P1 + P2) at inducing resistance to abiotic stresses and improving yields.

**Summary:** Yield increases were seen using COMCAT with all the crops examined.

The increase in the vining pea yield was just 2% when an unrepresentative harvest area had been discarded.

There was an 11% yield increase in the peas and 15% increase with spring beans.

There was no adverse effect on the crops from the treatment.

## Method

Two 60m strips of Bikini, vining pea, Crackerjack combining pea and Fuego spring field bean were drilled and rolled 30th March 2012.

On 2<sup>nd</sup> April the vining pea strips received 3.5l/ha Nirvana (imazamox + pendemethalin) and the combining peas and field beans received 4.5 l/ha. An Aphox overspray was also applied 4<sup>th</sup> July.

COMCAT was applied to one of the drilled strips when peas and beans had reached growth stage 103. Weather conditions slightly delayed the second application. This was applied when crops were at growth stage 202 - 203 (emerged buds/first flowers).

The strips were treated similarly except for COMCAT sprays.

Three, 1.5m x 5m areas of vining peas were harvested from each strip. Yield and TR recorded.

Six, 1.5m x 10m areas of combining pea and spring beans were harvested from each strip. Yield and moisture content recorded.

Site	Soil type	OS Grid Reference
Thornhaugh	Silty loam	TF 072 019

### Treatment list.

Treatment	Product	Timing	Rate (l/ha)	Product	Timing	Rate (l/ha)
1. Untreated						
2. COMCAT	P1	T1	1.67	P2 (Vitamix)	T2	1.5

T1 – 3-4 nodes of the crop (GS: 103-104)

T2 – flower buds visible (GS:201)

Product	Active Ingredient	Concentration
P1	CONF	
P2 (Vitamix)	Potash and phosphate	215 g/l/250 g/l

### Application Details

Nirvana pre-emergence herbicide application applied 2<sup>nd</sup> April 2012.

Weather: Temperature 11 °C, 65% RH, cloud cover 50%, wind speed 2-8 mph gusty, applications made between gusts. Crop growth stage: 002 (radicle apparent).

T1 applied 24<sup>th</sup> May 2012.

Weather: Temperature 14 °C, 100% RH, cloud cover 99%, wind speed 2 mph. Crop growth stage: 103 peas, beans 104.

T2 applied 12<sup>th</sup> June 2012.

Weather: Temperature 10 °C, 65% RH, cloud cover 70%, wind speed 2 mph. Crop growth stage: 202-203 (emerged buds/first open flowers).

Aphox (pirimicarb) overspray 4<sup>th</sup> July.

## Results.

Table 1: Ten random crop heights (cm) -2<sup>nd</sup> July 2012.

	Bikini Vining pea		Fuego Spring Bean		Crackerjack Combining pea	
	Untreated	COMCAT	Untreated	COMCAT	Untreated	COMCAT
	40	42	65	54	93	70
	40	41	64	66	90	90
	40	38	63	69	90	97
	40	41	65	80	82	84
	38	48	72	63	78	77
	50	39	60	70	69	100
	39	45	54	72	76	90
	36	46	58	78	60	100
	36	33	54	80	90	84
	39	44	56	66	63	96
<b>Average</b>	<b>39.8</b>	<b>41.7</b>	<b>61.1</b>	<b>69.8</b>	<b>79.1</b>	<b>88.8</b>

Table 2: Vining pea harvest data: 20<sup>th</sup> July 2012.

Trt	Bag Wt Kg	PLOT			AVERAGE
		Yield Kg	TR 1	TR 2	
COMCAT	20.3	3.3745	132	132	132
COMCAT	19.6	3.647	130	129	129.5
COMCAT	21.5	4.0425	128	127	127.5
	<b>Total</b>	<b>11.064 =</b>	<b>4.92t.ha</b>		
Untreated	17.9	3.305	131	131	131
Untreated	17.8	1.7265	121	124	122.5
Untreated	21.8	3.956	126	122	127
	<b>Total</b>	<b>8.988=</b>	<b>3.99t/ha</b>		

Table 3: Combining pea harvest data – 3<sup>rd</sup> September 2012.

Plot	Trt	Weight Kg	MC %	Kg (MC @ 15%)	
1	COMCAT	3.55	14.5	3.57	
2	COMCAT	5.02	11.4	5.23	
3	COMCAT	4.93	14	4.99	
4	COMCAT	4.24	14.6	4.26	
5	COMCAT	4.36	14.2	4.40	
6	COMCAT	3.68	12.8	3.78	<b>Average</b>
			<b>13.58</b>	<b>Total 26.23</b>	<b>2.91 t/ha</b>
1	Untreated	4.15	12.8	4.26	
2	Untreated	4.22	14.3	4.25	
3	Untreated	3.77	13	3.86	
4	Untreated	2.86	12.7	2.94	
5	Untreated	4.17	12.6	4.29	
6	Untreated	2.61	12.8	2.68	<b>Average</b>
			<b>13.03</b>	<b>Total 22.27</b>	<b>2.47 t/ha</b>

Table 4: Spring Bean harvest data: 3<sup>rd</sup> September 2012.

Plot	Trt	Weight Kg	MC %	Kg (MC @ 15%)	
1	COMCAT	6.56	14.7	6.58	
2	COMCAT	6.26	16	6.19	
3	COMCAT	7.16	15.7	7.10	
4	COMCAT	5.85	15.9	5.79	
5	COMCAT	5.4	16.2	5.32	
6	COMCAT	5.8	14.3	5.85	
			<b>15.47</b>	<b>Total 36.83</b>	<b>4.09t/ha</b>
1	Untreated	6.11	15	6.11	
2	Untreated	6.51	14.1	6.58	
3	Untreated	5.75	15.1	5.74	
4	Untreated	5.44	14.9	5.45	
5	Untreated	4.49	17.1	4.38	
6	Untreated	4.67	15.2	4.66	
			<b>15.23</b>	<b>Total 32.92</b>	<b>3.65t/ha</b>

## Discussion.

It is suggested that applying COMCAT stimulates crops in such a way that they are more tolerant of abiotic stresses and enables diseases such as foot rots to be tolerated more effectively. Work in New Zealand with COMCAT on vining peas has shown useful increases in yields when compared to conventionally treated crops.

This work would hopefully back up these findings in vining peas and show useful yield increases in both combining peas and spring field beans.

COMCAT applications did not cause any crop phytotoxicity.

The average crop height measurement (Table 1) showed an increase where COMCAT had been used. With the combining peas and spring beans the increase was approximately 9 cm but vining peas just 2cm.

The use of COMCAT on vining pea Bikini appeared to increase yield by approximately a tonne per hectare but did not influence the TR (Table 2). This represented a yield increase of 19%. However the Bikini suffered from some severe bird damage just prior to harvest and one of the plots on the untreated strip looks as though it is not representative. Removing this data means the yield increase is reduced to a less impressive 2%.

Combining pea harvest data (Table 3) again indicated increased yields where COMCAT was used. Yields were lifted from 2.47 t/ha to 2.91 t/ha, a useful increase of about 15%. There seemed to be little effect on moisture content at the time of harvest.

The beans appeared to emerge very unevenly get pulled out by crows as they did emerge and looked very patchy for a long time. However at the time of harvest they looked the most impressive of the three crops and gave a reasonable yield. Again the use of COMCAT boosted the yield this time from 3.65 t/ha to 4.09 t/ha which represents an 11% increase. Again, as with the peas, there seemed to be little effect on moisture content at harvest.

In a difficult year because of extremely wet conditions we did see yield increases with all three crops. As mentioned previously evidence of COMCAT's usefulness in vining peas has been demonstrated overseas and we saw a small increase in this work but perhaps not a particularly remarkable one (2%). It does, however, look to have potential and a repeat of the work would be useful.

Increases of 10-15% in yield in the dry peas and spring beans were quite impressive. Commercial split field work in these crops next season would hopefully provide further favourable data.

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