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## **BioAktiv Trial on Sorghum MR43**

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# BioAktive trial on Sorghum MR43 (line 1)

## Seed preparation:

MR43 from Garry Lane (Brownings) was harvested on 28/03/2013. Seeds were collected before and after harvest.

Pre-harvest: seeds were divided by pinched (Rutherglen bug) 200 seeds and non-pinched 200 seeds.

Post-harvest: seeds also were divided by pinched (200) and non-pinched (200).

As germination control, Bazeley variety (Berrigan) was used with TZ 98% (200 seeds).

## Planting:

Seeds were planted in pots (40 seeds in each) on Friday 5/04/2013 with lids left on over the weekend. Pots were examined on Monday with no evident seedlings emerging just yet. BioAktive plant strengthener was applied on 5/04/2013 and 15/04/2013 as foliar (half a teaspoon mixed with cup of water per pot). First seedlings were observed on 10/04/2013.

## Experiment set-up:



## Tasks:

- 1) To assess the impact of seed pinching by Rutherglen bugs on germination and plant vigour
- 2) Does the use of plant tonic BioAktive on pinched seeds improve germination/vigour results?

Observations:

Checks on the 16/04/2013 – much higher soil water retention in case of BioAktive pots (pictures below). Pots with Bioaktive have much darker soil.



Germination results:

18/04/2013

29/04/2013

First germination count:

Second germination count:

<p>1: Mr 43 looks ok (pre-harvest)</p> <p>No BioAktive pots: 38 out of 40 40 out of 40</p> <p>BioAktive pots: 39 out of 40 33 out of 40 38 out of 40</p>	<p>1 small 2 smalls  3 smalls 1 abnormal 1 small</p>	<p>1: Mr 43 looks ok (pre-harvest)</p> <p>No BioAktive pots: 38 out of 40 40 out of 40</p> <p>BioAktive pots: 39 out of 40 39 out of 40 35 out of 40</p>	<p>1 small 2 smalls  1 small 2 smalls 1 small</p>	<p>95.5%</p>
<p>2: Mr 43 pinched (pre-harvest)</p> <p>No BioAktive pots: 39 out of 40 34 out of 40</p> <p>BioAktive pots: 36 out of 40 37 out of 40 35 out of 40</p>	<p>5 smalls 1 abnormal 3 smalls  2 smalls 2 smalls 4 smalls</p>	<p>2: Mr 43 pinched (pre-harvest)</p> <p>No BioAktive pots: 39 out of 40 35 out of 40</p> <p>BioAktive pots: 35 out of 40 35 out of 40 38 out of 40</p>	<p>2 smalls 1 smalls   2 smalls</p>	<p>91%</p>
<p>3: Bazeley Berrigan (TZ 98%)</p> <p>No BioAktive pots: 38 out of 40 38 out of 40</p> <p>BioAktive pots: 39 out of 40 37 out of 40 39 out of 40</p>	<p>1 small 3 smalls  2 smalls</p>	<p>3: Bazeley Berrigan (TZ 98%)</p> <p>No BioAktive pots: 38 out of 40 39 out of 40</p> <p>BioAktive pots: 39 out of 40 38 out of 40 40 out of 40</p>	<p>3 smalls 2 smalls  1 small 1 small</p>	<p>97%</p>
<p>4: Mr 43 pinched (off header)</p> <p>No BioAktive pots: 32 out of 40 35 out of 40</p> <p>BioAktive pots: 37 out of 40 34 out of 40 28 out of 40</p>	<p>6 smalls 2 smalls  8 smalls 4 smalls 2 smalls</p>	<p>4: Mr 43 pinched (off header)</p> <p>No BioAktive pots: 31 out of 40 35 out of 40</p> <p>BioAktive pots: 37 out of 40 34 out of 40 29 out of 40</p>	<p>2 smalls 2 smalls  3 smalls 1 small 2 smalls</p>	<p>83%</p>

5: Mr 43 looks ok (off header)		5: Mr 43 looks ok (off header)		
No BioAktive pots:	2 smalls	No BioAktive pots:		
38 out of 40	7 smalls	38 out of 40	1 small	87%
32 out of 40		32 out of 40		
BioAktive pots:	4 smalls	BioAktive pots:	1 small	
34 out of 40		34 out of 40	1 small	
33 out of 40	6 smalls	33 out of 40	1 small	
34 out of 40		37 out of 40		

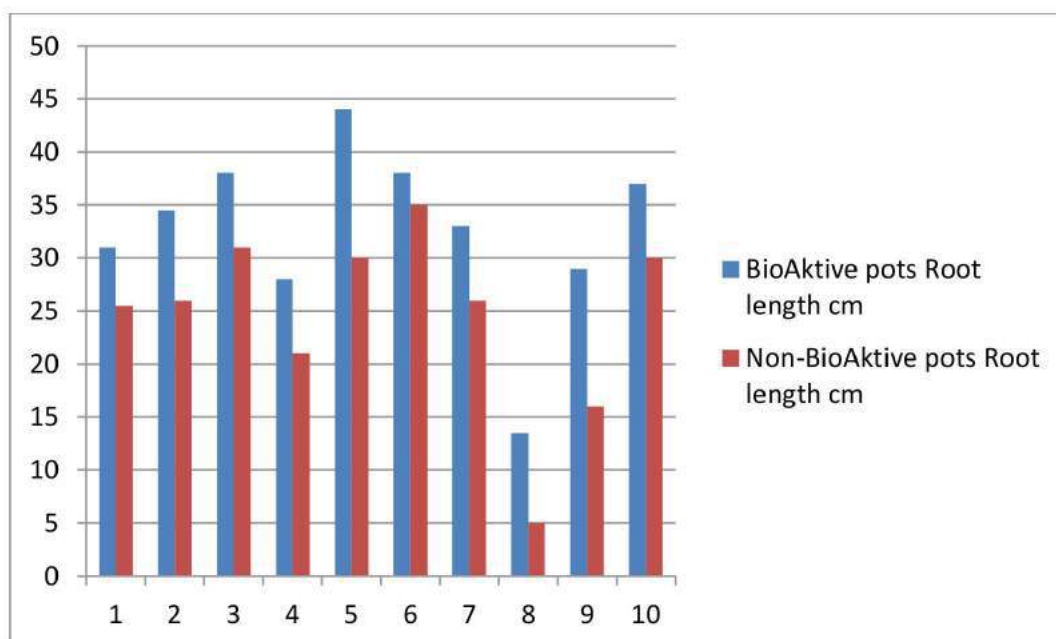
Conclusions:

BioAktive does not improve germination results. Non-pinched seeds showed 4-5% better germination results than pinched (Rutherglen bug damage) as was expected.

Next step:

Vigour measurements – root and shoot lengths were measured (cm) starting from 2/05/2013 from several pots to get representational results (Bazeley and MR43 pinched). The results are also attached as Excel spreadsheet. Below is the histogram showing consistent results for MR Bazeley variety with longer roots observed in BioAktive-treated pots and photos taken during the measurements (BioAktive-treated plants are shown on the left). Shoot length results did not show any consistency likely because of change of lighting during the experiment (after a month from emergence plants were transported into the room with artificial UV lights and controlled temperature). Also a few plants showed shorter roots (BioAktive-treated) but had more vigour than non-Bioaktive pots (data shown in Excel spread sheet) that also might be the results of non-consistent experimental conditions (temperature, UV lights).

Measurements of root lengths in BioAktive-treated and non-treated pots (MR Bazeley variety)





Next steps:

Plants are still monitored, all pots have been thinned (30 plants per pot discarded) and additional application of BioAktive on 3/05/2013.

