

SPot East Results Day 2018

Herbicide Demonstrations 2016-2018

Graham Tomalin VCS Potatoes

Herbicides



Herbicides

Herbicide update

- Linuron – approval now revoked
- Diquat – approval to end – sales end 4th May 2019 - end of use 4th February 2020

Will this be the end or the beginning?

Following changes to pesticide approval system to a new Regulation regime in 2009 – '*Regulation (EC) No. 1107/2009*' all new active substances or renewal of approvals of current active substances would need to comply with the new regulations

- **Hazard** not **risk** assessments
- 10 year renewals
- Candidates for substitution list 77 active substances inc Pendimethalin (EU approval 2024) , **Metribuzin (EU approval 2019)** and Flufenacet (EU approval 2019)

Herbicides

Spot Farm East Demonstrations

2016 - Spot East Residual Demonstration (linuron alternatives)

2017 - Spot East Residual and post - em Contact Demonstration

2018 – Spot East Residual and post - em Contact Demonstration



2016



2017



2018

Herbicides

Spot Farm East – 2018 Demonstrations

- 14 non replicated plots with different residual herbicide applications all including contact herbicide diquat @ 3l/ha
 - Further investigation of metobromuron in combinations
 - Assessments of potential new a.i. aclonifen in combinations
- 26 Varieties – each single row

Category	Varieties
Processing Varieties	R. Burbank, Royal, Performer, Challenger, Shepody, Innovator, Forza , Rooster
Prepack Varieties	Lanorma, Soraya , Jelly , Nectar, Melody, Sensation , Red Fantasy , Georgina
Crisping Varieties	Brooke, VR808
Salad Varieties	Maris Peer, Gwenne , Angelique , Bambino, Leontine , Iodea , Gemson
Ware Varieties	Maris Piper

- 4 non replicated Post emergence herbicide comparisons

Herbicides

Treatments Single A.I 2016, 2017 & 2018

Year	Herbicide Application	Cost £/ha
	UNTREATED	£0
2017 & 2018	VCS 1717 (<i>aclonifen</i>) 2.5l/ha	TBC
2016, 2017 & 2018	Stomp Aqua (pendimethalin 455g/l) 2.8 l/ha	£22
2016, 2017 & 2018	Praxim (<i>metobromuron</i> 500g/l) 4l/ha	£72
2017	Gamit 36SC (<i>clomazone</i> 360 g/l) 200ml/ha	£15
2017	No Product (<i>flufenacet</i> 500g/l) 600g/ha (maximum rate within Artisit)	TBC
2016 & 2018	Defy (<i>prosulfocarb</i> 800g/l) 4l/ha	£26
2016, 2017 & 2018	Shotput (<i>metribuzin</i> 70%) 600g/ha	£14

Other Products are available with identical active substances!

Herbicides

Treatments Combinations A.I.'s 2018

Year	Herbicide Application	Cost £/ha
2018 (E&N)	Praxim (<i>metobromuron</i> 500g/l) 2.5 l/ha + Stomp Aqua (<i>pendimethalin</i> 455g/l) 1.8 l/ha + Shotput (<i>metribuzin</i> 70%) 200 g/ha	£66
2018 (E&N)	STD Praxim (<i>metobromuron</i> 500g/l) 2.5 l/ha + Defy (<i>prosulfocarb</i> 800g/l) 3 l/ha + Shotput (<i>metribuzin</i> 70%) 200 g/ha	£71
2018 (E)	(<i>aclonifen</i> 600g/l) 2.0 l/ha + Stomp Aqua (<i>pendimethalin</i> 455g/l) 1.8 l/ha + Shotput (<i>metribuzin</i> 70%) 200 g/ha	TBC
2018 (E)	(<i>aclonifen</i> 600g/l) 2.0 l/ha + Defy (<i>prosulfocarb</i> 800g/l) 3 l/ha + Shotput (<i>metribuzin</i> 70%) 200 g/ha	TBC
2018 (E)	(<i>aclonifen</i> 600g/l) 2.5 l/ha + Shotput (<i>metribuzin</i> 70%) 400 g/ha	TBC
2018 (E)	Stomp Aqua (<i>pendimethalin</i> 455g/l) 1.8 l/ha + Shotput (<i>metribuzin</i> 70%) 400 g/ha	£26
2018 (E&N)	Artist (<i>metribuzin</i> 17.5% + <i>flufanacet</i> 24%) 1.2 kg/ha + Stomp Aqua (<i>pendimethalin</i> 455g/l) 1.8 l/ha	£45
2018 (E&N)	VCS 1818 (<i>new ai</i> + <i>clomazone</i>)	TBC
2018 (E)	VCS 1919 (3 ai's)	TBC

Other Products are available with identical active substances!

Herbicides

Application Timings 2018

Planting Date	25 th April
Residual Application date	13 th May
Post Emergence Application 1	11 th June
Weed count Assessments 1	14 th June
Post Emergence Assessments 1	22 nd June
Post Emergence Application 2	28 th June
Post Emergence Assessments 2	8 th July

Residual Observations 2018

- Low levels of weed development on all plots including untreated
- Rapid canopy development following emergence
- Only very low levels of chlorosis when comparing residuals

Herbicides

Metribuzin Phytotoxicity

Metribuzin – veinal yellowing/chlorosis – stunting – varietal variation *(label "do not use Shoput on sands")*



Herbicides

Clomazone Phytotoxicity

Clomazone – chlorosis- whitening – varietal variation (*label "do not use Gamit 36EC on sands or very light soils"*)



Herbicides

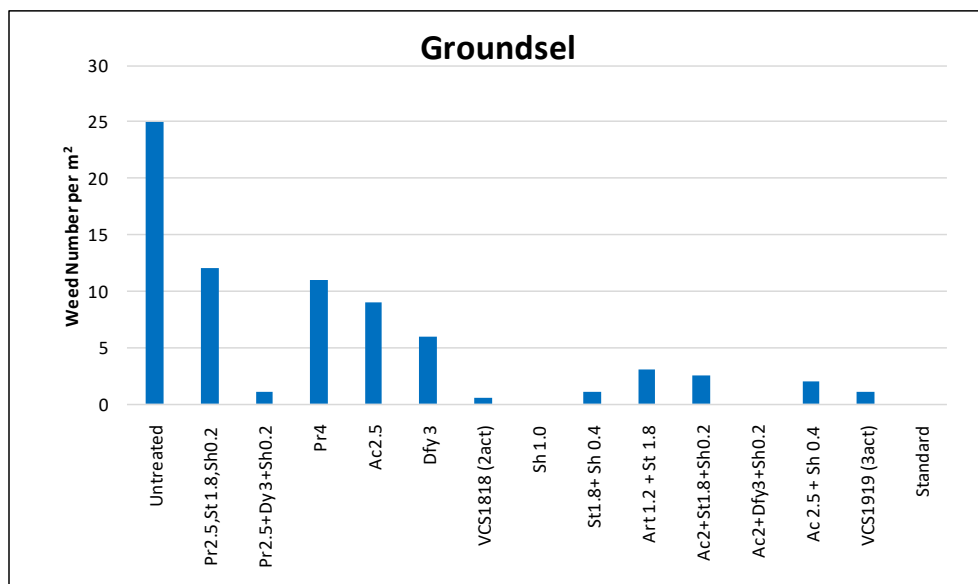
Pendimethalin Phytotoxicity

Pendimethalin – slight yellowing of leaf margins, leaf distortions (*label Stomp Aqua "on stony or gravelly soils there is a risk of crop damage especially if heavy rain falls soon after application"*)



Herbicides

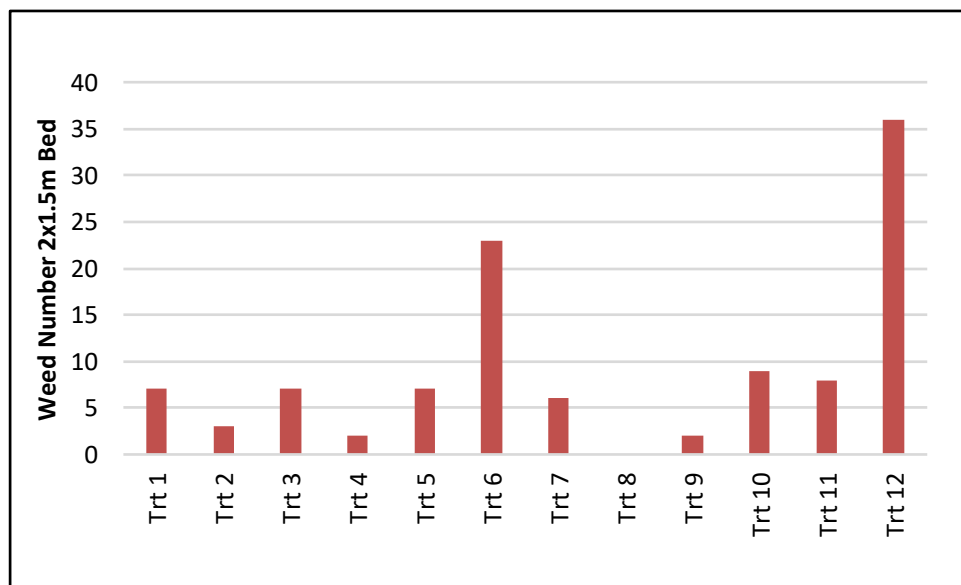
Groundsel – Observations and weed counts 2018 (East)



- Improved control with increasing rates of a.i. *Metribuzin* – **Shotput/Artist**
- Good activity – *linuron/clomazone* **Gamit 36EC**
- Low - moderate activity *metobromuron, pendimethalin, prosulfocarb* – **Praxim, Stomp Aqua & Defy**

Herbicides

Cleavers – Observations and weed counts 2016

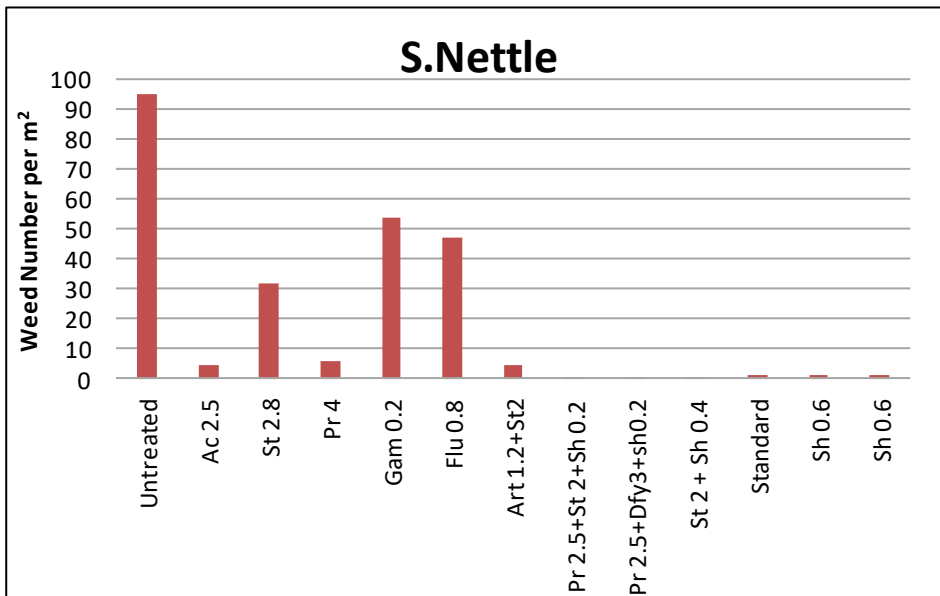


- Good activity prosulocarb - **Defy**
- Moderate activity flufenacet/ clomazone (both lower rate) – **Artist, Gamit 36 EC**
- Poor activity pendimethalin, linuron, metribuzin & metobromuron – **Stomp Aqua, Shotput & Praxim**

Note - uneven distribution of cleavers across site

Herbicides

S.Nettle – Observations and weed counts 2017



- Good control within 3 way mixes
- Moderate activity *metobromuron/metribuzin/pendimethalin/aclonifen* – **Praxim, Shotput, Stomp Aqua**
- Poor activity *clomazone, flufenacet, prosulfocarb* - **Gamit 36EC, Defy**

Herbicides

Fat Hen – Observations and weed counts 2017



- Good activity VCS 1717 (aclonifen)
- Moderate activity pendimethalin, linuron, metribuzin & metobromuron

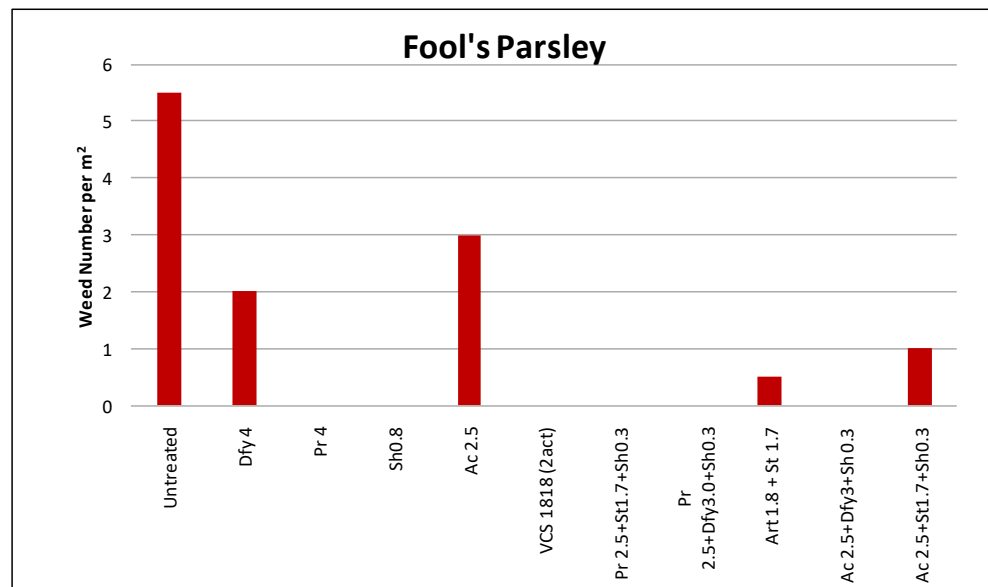
Stomp Aqua, Praxim & Shotput

- Poor activity clomazone & flufenacet – **Gamit 36Cs**

Note – weed counts full strip

Herbicides

Fool's Parsley – Observations and weed counts 2018 (North)

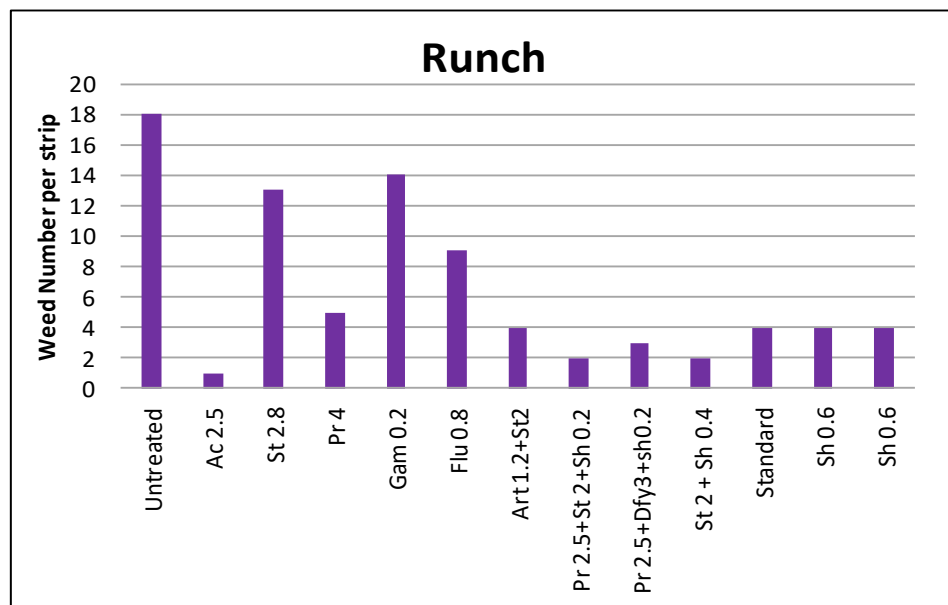


- Good activity metabromuron, metribuzin – **Praxim (higher rates), Shotput**
- Poor activity pendimethalin, aclonifen, prosulfocarb – **Stomp Aqua, Defy**

Note – low levels of weed present

Herbicides

Runch – Observations and weed counts 2017



- Good activity metribuzin, VCS 1717 (aclonifen) - **Shotput**
- Moderate activity metobromuron - **Praxim**
- Poor activity pendimethalin, clomazone, flufenacet – **Stomp Aqua, Gamit 36CS**

Herbicides

Summary Residual Herbicides 2016-2018

Wild Oats

UNTREATED



Linuron 450g/L @ 1.2 L/ha



Aclonifen @ 1 L/ha pre-em



Aclonifen @ 2 L/ha pre-em



Aclonifen @ 3 L/ha pre-em



Herbicides

Summary Residual Herbicides 2016-2018

Annual Meadow Grass

UNTREATED



Linuron 450g/L @ 1.2 L/ha



Aclonifen @ 1 L/ha pre-em



Aclonifen @ 2 L/ha pre-em



Aclonifen @ 3 L/ha pre-em



Herbicides

Summary Residual Herbicides 2016-2018

Chickweed

UNTREATED



Linuron 450g/L @ 1.2 L/ha



Aclonifen @ 1 L/ha pre-em



Aclonifen @ 2 L/ha pre-em



Aclonifen @ 3 L/ha pre-em



Herbicides

Summary Residual Herbicides 2016-2018

Annual Sow thistle

UNTREATED



Linuron 450g/L @ 1.2 L/ha



Aclonifen @ 1 L/ha pre-em



Aclonifen @ 2 L/ha pre-em



Aclonifen @ 3 L/ha pre-em



Herbicides

Summary Residual Herbicides 2016-2018

Mayweed and B.Bindweed

Untreated



Aclonifen @ 2 L/ha pre-em



Herbicides

Summary Residual Herbicides 2016-2018

- Low level of weeds on East 2018
- Options for Linuron replacement exist but costs will likely increase
- Knowledge of weed spectrum present will aid cost effective control – target actives to expected weed spectrum
- *Metribuzin* is the most cost effective *a.i.* for many weeds, include in most applications - **but** be careful of soil types and variety susceptibility
- 3 Residual A.I. mixes provide a broader range of control of weed spp.
- A.I. *aclonifen* looks a useful addition when used in combination with other actives – strengths F.hen, mayweed, s.nettle, amg, blackgrass, munch, charlock. **Residual control only- Application required pre-emergence of the weeds.** No phytotoxicity observed on any variety in 2017 (one site) 2018 (2 sites) when applied pre-emergence of the crop. Approval??

Herbicides

Post Emergence Herbicide East 2018

Trt no.	Water volume	Herbicide Application	Cost £/ha
15	200 l/ha	Shotput (<i>metribuzin</i> 70%) 200g/ha	£4.70
16	200l/ha	Shotput (<i>metribuzin</i> 70%) 500g/ha	£11.70
17	200l/ha	Shotput (<i>metribuzin</i> 70%) 200g/ha + Titus (<i>rimsulfuron</i> 25%) 30g/ha + NI Wetter	£20
18	200l/ha	Basagran (<i>bentazone</i> 87%) 1.1kg/ha + Wetter	

- Application @ 15-20cm crop height – 15th June (East)
- Significantly reduced level of scorch than anticipated, all treatments

Other Products are available with identical active substances!

Herbicides

Post Emergence Herbicide 2018

Basagran 1.1kg/ha



Significant Phytotoxicity – R.Burbank



Significant Phytotoxicity - Leontine

Herbicides

Post Emergence Herbicide 2018

Basagran 1.1kg/ha

Tolerant to Very Low Sensitivity	Moderate Sensitivity	High Sensitivity
Gwenne Angelique Bambino Gemson Iodea Georgina Brooke Challenger Royal Performer Rooster Lanorma Nectar M.piper	M.peer Innovator Forza Soraya Sensation Red Fantasy Shepody VR808 Melody	R.Burbank Leontine Jelly

2018 Demonstration Results – Caution not Recommendation!

Herbicides

Post Emergence Herbicide 2018

Shotput 500g/ha



Severe Scorch – Innovator

Moderate Scorch - Melody

Herbicides

Post Emergence Herbicide 2017

Trt 15 - Shotput 500g/ha



Slight Scorch – Georgina

No Scorch - Royal

Herbicides

Post Emergence Herbicide 2016-2018

Shotput 500g/ha

Tolerant	Low Sensitivity	Moderate Sensitivity	High Sensitivity
V.Sovereign Brooke Marfona Saxon Challenger Markies	Royal Daisy Lanorma R.Burbank Jelly Angelique Bambino Gemson Rooster Soraya	M.piper Leontine Eurostar Melody Nectar Performer Gwenne Shepody Georgina Iodea	Forza Innovator M.Peer VR808

2018 Demonstration Results – Caution not Recommendation!

VCS Potatoes Ltd would like to thank Elveden Estates and AHDB potatoes for their assistance with these demonstrations