

Alfalfa Seed Herbicide Trial 2016 and 2017

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Today's Agenda

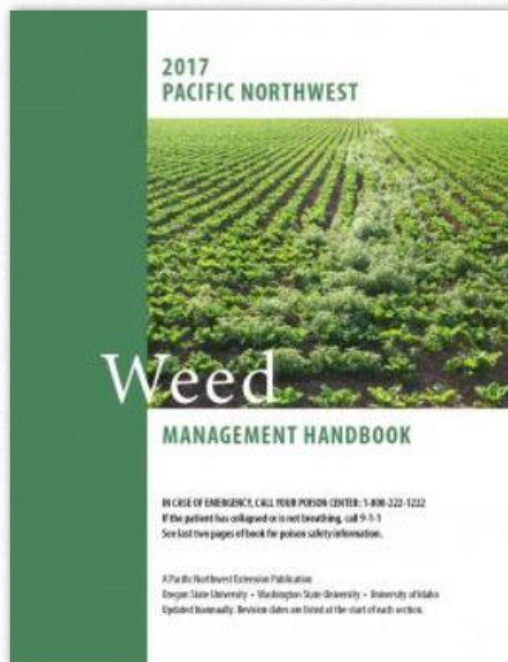
- Herbicides used in Alfalfa for seeds
- Results from 2016 and 2017 study
- Summarize



PNW Weed Management Handbook

<https://pnwhandbooks.org/weed/agronomic/forage-seed/alfalfa-seed>

Section editor: Tim Prather



2017 PNW Weed Management Handbook

Ed Peachey

A comprehensive guide to weed management in the Pacific Northwest.

Covers biological weed control agents, pesticide safety and disposal, agrichemicals and their properties, and control of problem weeds. Contains sections on weed control in cereal grain crops; grass seed crops; forage and seed crops; legumes; oils and fiber; corn; hops; potatoes; sugar beets; aquatics; forestry; orchards and vineyards; small fruits; vegetable crops; vegetable seed crops; Christmas trees; nursery, greenhouse, and bulb crops; professional landscape maintenance; turfgrass; home landscapes and gardens; pasture and rangeland; and non-cropland and right-of-way. In each section, products are listed along with application rates, timing, and other remarks. Includes a glossary, conversion tables, chemical application calculations, and a full index.

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The handbook is updated biannually (March and August). Individual articles are revised once a year. Revision dates are listed at the beginning of each article and in the mini table of contents at the beginning of each section. In 2017, the handbook was only revised in March.



Herbicides for New Seedlings

Herbicide	Rate (lb ai/acre)	Timing
Benefin (Balan 60 DF)	1.2 to 1.5	Before planting
EPTC (Eptam 7E)	2 to 4	Before planting
Imazamox (Raptor)	0.03125 to 0.047	Seedling at least 2 trifol.
Imazethapyr (Pursuit)	0.047 to 0.094	2 nd trifoliolate
Pendimethalin (Prowl)	0.475 to 0.95	2 trifoliates but <6" tall
Trifluralin (HFP)	0.5 to 0.75	Before planting
2,4 DB (Butyrac 200)	0.5 to 1.5	Alfalfa at 2-4 leaf
Bentazon (Basagran 5L)	0.75 to 1	2 trifoliolate <flower bud formation
Bromoxynil (Brox 4EC)	0.25 to 0.375	2 trifoliolate or fall
Ethalfuralin (Sonalan HFP)	1.5 to 1.7	Spring before dodder emergence

Herbicides for Alfalfa for Seed New Seeding

Herbicide	Rate (lb ai/A)	Timing
Benefin (Balan 60 DF)	1.2 to 1.5	Before planting to clean field
EPTC (Eptam 7E)	2 to 4	Before planting and incorporate
Imazamox (Raptor)	0.031 to 0.047	After seeding 2 expanded trifoliate
Imazethapyr (Pursuit)	0.047 to 0.094	After seeding 2 trifoliate
Pendimethalin (Prowl or Stealth)	0.475 to 0.95	2 trifoliate but <6" tall – 1/15 to 4/30
Trifluralin (Treflan HFP)	0.5 to 0.75	Before planting and incorporate 2-3"
2,4 DB (Butyrac 200)	0.5 to 1.5	Alfalfa at 2-4 leaf
Bentazon (Basagran 5L) – WA & OR	0.75 to 1	At least 2 trifoliate and no flower buds
Bromoxynil (Brox)	0.25 to 0.375	Fall or spring at least 2 trifoliate

Herbicides for Established Alfalfa for Seed

Herbicide	Rate (lb ai/A)	Timing
Asulam (Asulox) – WA only	1.24 to 1.5	Weeds <3 inches
Carfentrazone (AIM EC)	0.008 to 0.04	Fall to dormant crop
Diuron (Karmex, Direx4L)	1.2 to 2.4	Fall-start of dormancy (Oct through Dec)
Flumioxazin (Chateau)-WA only	0.1275	Pre-emergence to weeds
Hexazinone (Velpar DF)	1 to 1.5	Fall-dormant crop & spring <2"
Hexazinone + diuron (Velpar Alfamax Gold)	0.231 to 0.462	Fall-dormant crop & spring <2"
Imazamox (Raptor)	0.031 to 0.047	Fall, spring to dormant or semi dormant
Imazethapyr (Pursuit)	0.047 to 0.094	Fall, spring to dormant or semi dormant
Metribuzin (TriCor 75DF, TriCor4F)	0.25 to 1	Fall-dormant and spring before growth
Norflurazon (Solicam)	1 to 2	Not < 5 months after crop emerges or to dormant crop
Dual Magnum (s-metolachlor) – OR	2.5 to 3.2	Incorporate before crop emergence
Terbacil (Sinbar)	0.4 to 1.2	Dormant after frost <Jan 1
Pendimethalin (Prowl 3.3,ProwlH2O)	2 to 4	Est alfalfa between Jan 15 and April 30
Terbacil (Sinbar)	0.4 to 1.2	Dormant alfalfa before Jan 1
Pronamid (Kerb 50-W)	1.5 to 2	Spring before dodder emerge
Trifluralin (Treflan TR-10)	3 to 4	Late winter or spring before dodder
Ethalfuralin (Sonalan HFP)	1.5 to 1.7	Before nightshade germinates

Grower Needs

- Trial was initiated in response to seed grower request
- Various herbicides to manage 'hard to control weeds'
- Registered and experimental material



Target Weeds

- Target specific weeds:
 - Prickly lettuce
 - Sow thistle
 - Nightshade
 - Dodder
 - Bindweed
 - Canada thistle
 - Redroot pigweed
 - Common lambsquarter
 - Common mallow

WANTED



Trial Layout

- Planted (Spring 2015)
- 8 Treatments
- 4 replications
- 6 rows (22") wide X 35' long
- Fall broadcast hairy nightshade and sow thistle



List of Treatments

Treatment	Rate	Status
Untreated control		
Velpar L (Grower standard)	16 fl oz/A	Registered
Alion	2 fl oz/A	Not registered
Alion	3 fl oz/A	Not registered
Alion	4 fl oz/A	Not registered
Chateau	4 fl oz/A	Only in WA
Outlook	21 fl oz/A	Not registered
Prowl H2O	2 pt/A	Registered



Trial Site – Malheur Exp Station

- Planted April 14, 2015
- Hand thinned – June 29, 2016
 - Pattern was 14" cutout and 5" patch left - usually 1-3 plants/clamp.



Spring – March 11, 2016



Harvest

- The trial was chemically desiccated on 23 August.
- Three rows within the center of each plot was harvested using a Wintersteiger small plot combine harvester on 31 Aug 2016 and 1 Sep 2017.



2016 Results

	Weed ratings 1-5 (5=best)		
Treatment	9-Jul	1-Aug	23-Aug
Non-treated Check	4.3	3.5	3.5
Alion @ 2oz/ac	4.3	4.3	3.8
Alion @ 3oz/ac	5.0	4.5	4.0
Alion @ 4oz/ac	4.8	3.8	3.8
Chateau @ 4oz/ac	4.8	4.8	4.5
Outlook @ 21oz/ac	4.8	4.5	4.5
Prowl H ₂ O @ 2pts/ac	4.8	4.5	4.5
Velpar @ 16oz/ac	5.0	4.3	4.3
LSD	ns	ns	ns



Results 2017

	Rate/A	B. Mustard 3/15	C. Mallow 3/15	B. Mustard 3/23	C. Mallow 3/23	Overall 8/3/2017
		----- % control -----				
Untreated		5d	5b	0.0d	0.0d	5c
Alion	2 floz	100a	65a	99a	97a	95ab
Alion	3 floz	98a	63a	98a	97a	100a
Alion	4 floz	98a	68a	96a	99a	100a
Chateau	4 floz	40c	45a	50c	61b	95ab
Outlook	21 floz	10d	5b	63c	20c	80ab
Prowl H2O	2 pt	59bc	10b	90ab	29c	98a
Velpa L	16 floz	80ab	58a	80b	59b	95ab

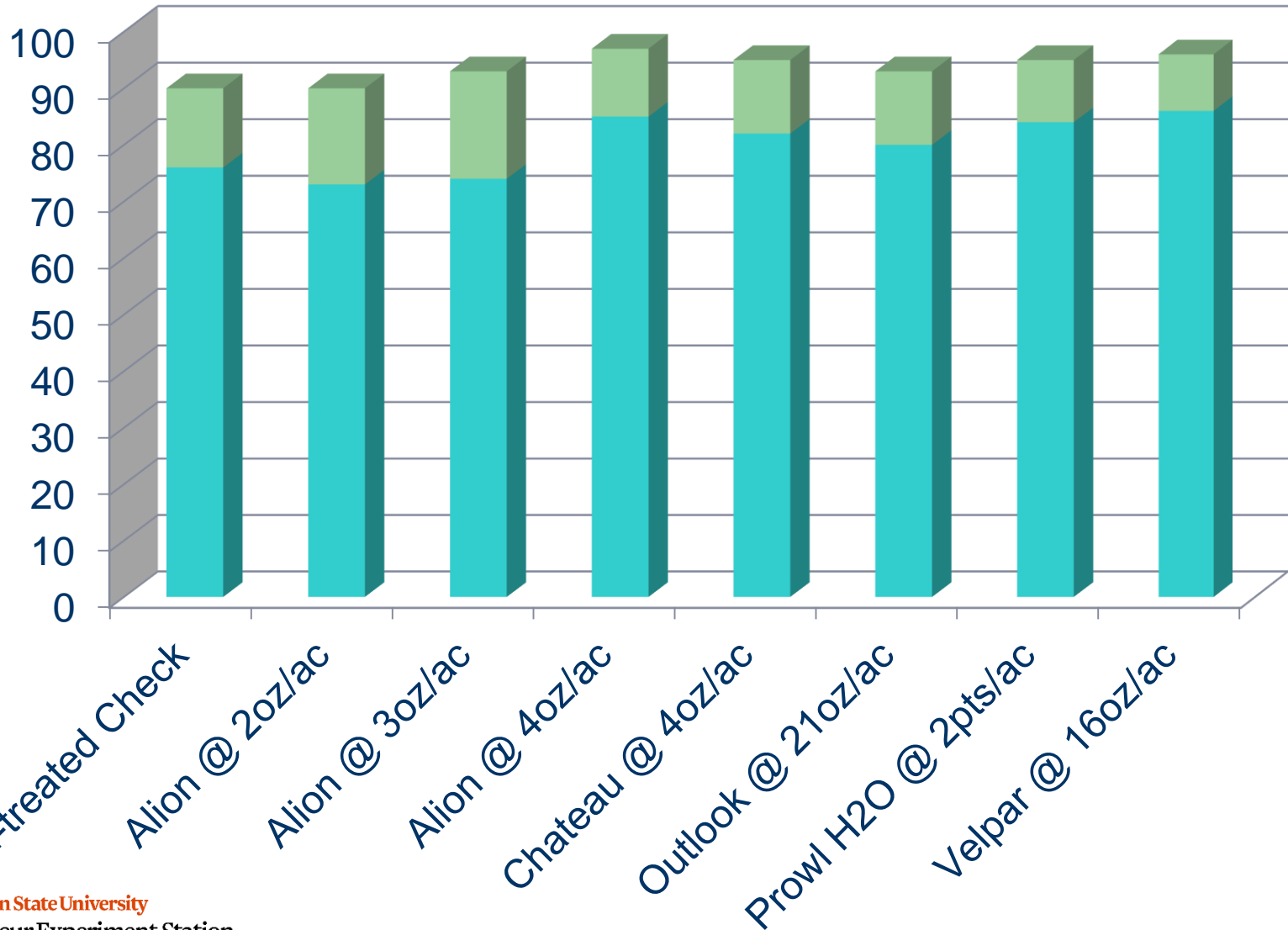
Seed Yield

	Rate/A	Yield 2016		Yield 2017	
		----- Lbs/Acre -----			
Untreated		589.1	a	805.2a	
Alion	2 floz	626.2	a	1004.4a	
Alion	3 floz	598.1	a	876.8a	
Alion	4 floz	613.8	a	851.9a	
Chateau	4 floz	712.8	a	927.2a	
Outlook	21 floz	611.3	a	937.2a	
Prowl H2O	2 pt	534.6	a	1007.5a	
Velpa L	16 floz	589.1	a	730.6a	

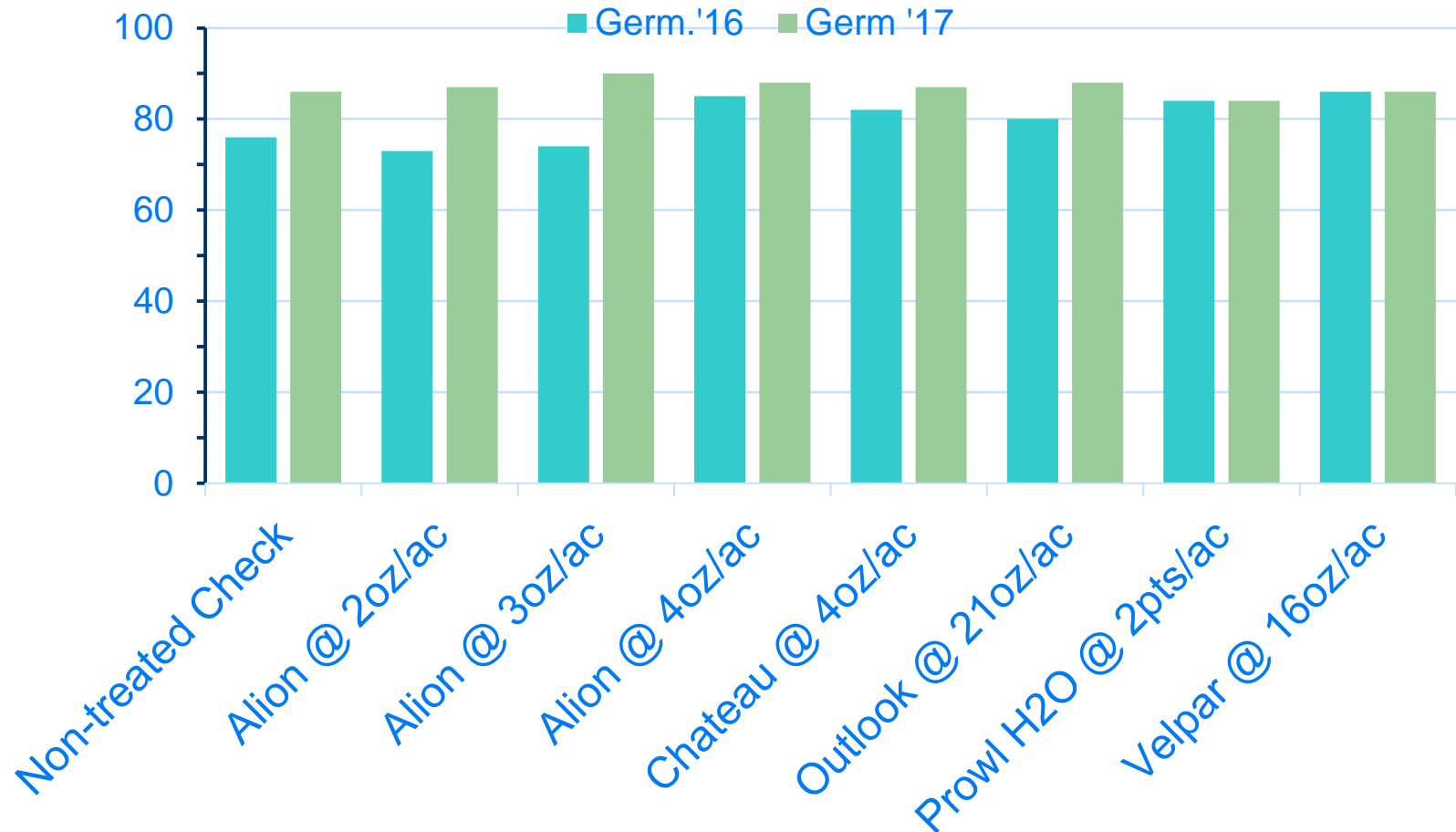


% Germination

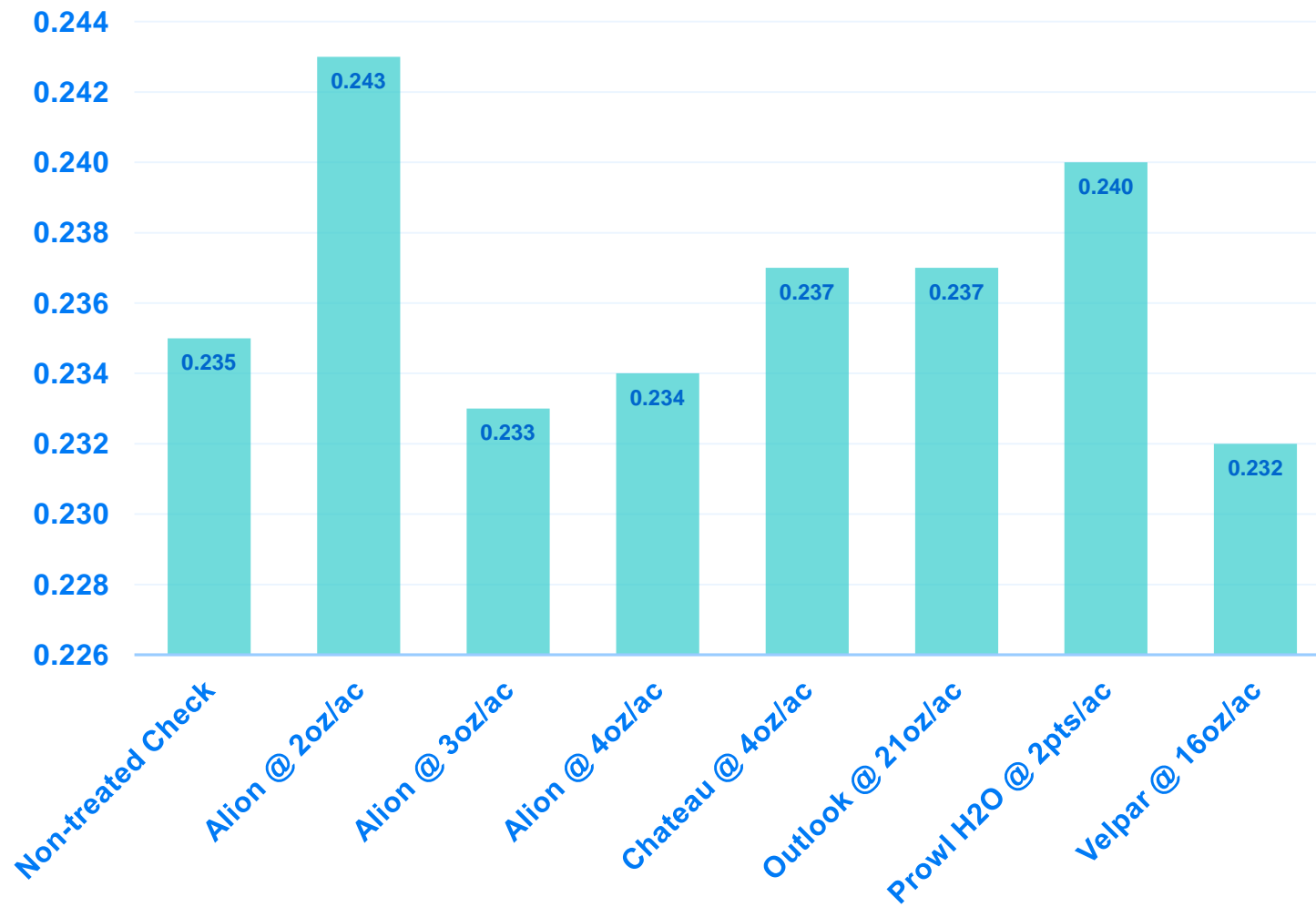
■ Germ.'16 ■ Hard '16



Seed Germination



2017 Weight g/100 Seeds



Way Forward

- Multi-year project
- Will keep the same treatments over the same plots



Way Forward

- Multi-year project
- Same treatments over the same plots for 2 years
 - Volunteer clouding stand
 - Future of Alion in question
- Open to suggestions



Thank you!



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