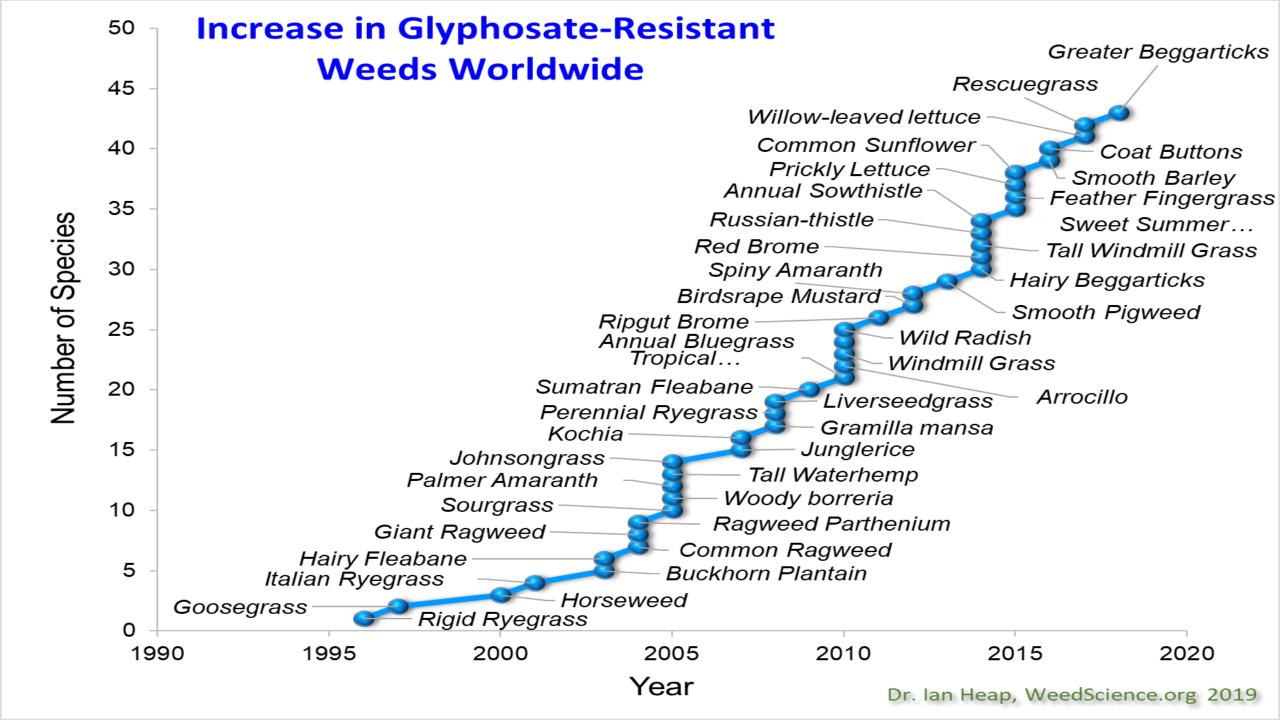


Roadside Vegetation Management Presentation

ALL INFORMATION IN THIS PRESENTATION IS BASED SOLELY ON TRIAL AND ERROR PRACTICES AND THE THOUGHTS OF THE HERBICIDE APPLICATORS AT CANYON HIGHWAY DISTRICT NO. 4



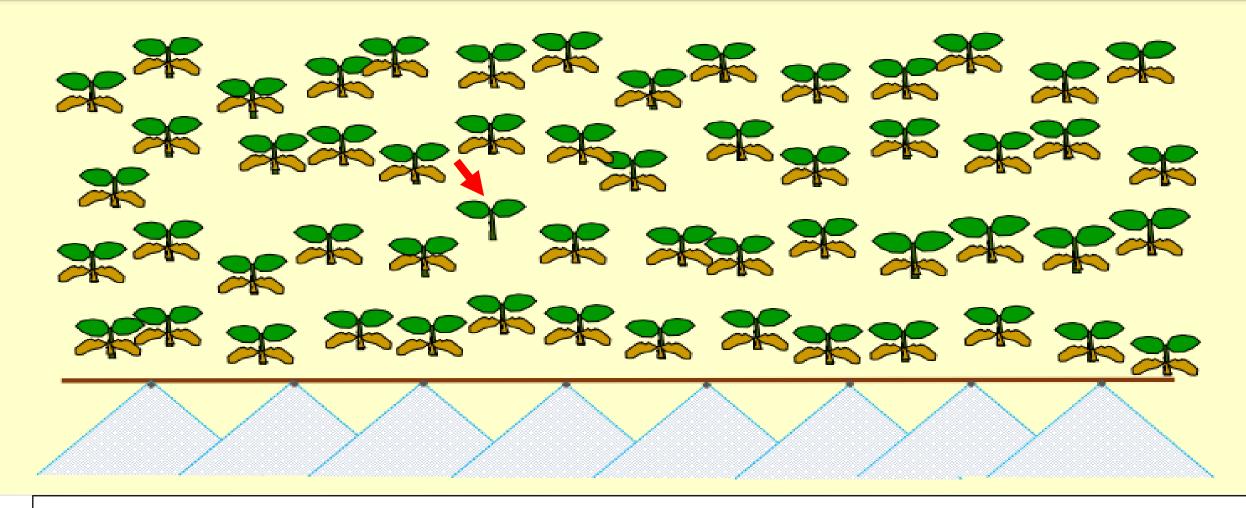


Herbicide Resistant Weeds In Idaho Currently there are 11 in Idaho

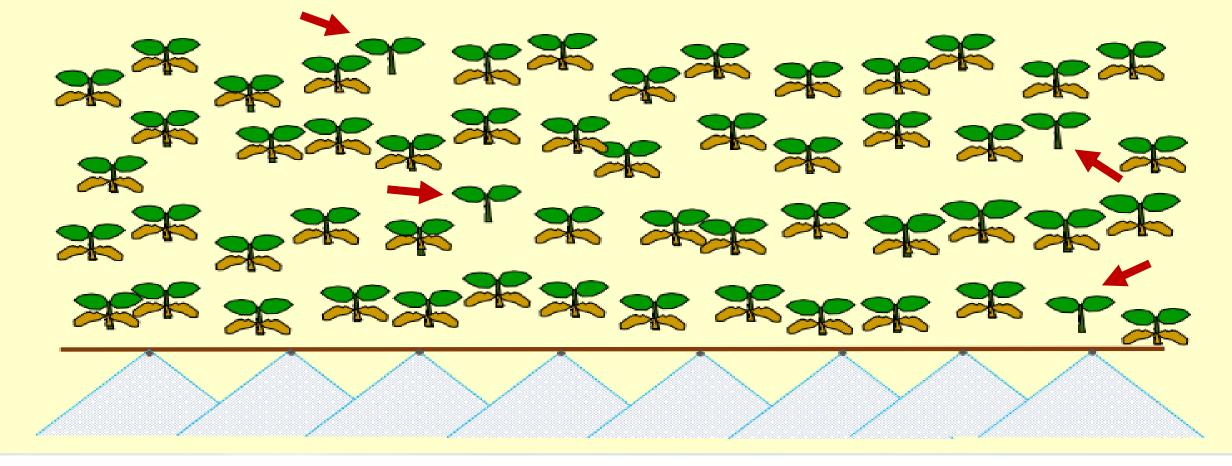
- 1987 Prickly Lettuce was found to be resistant to Group 2 (ALS Inhibitors)
- 1989 Kochia was found to be resistant to Group 2 (ALS Inhibitors)
- 1992 Wild Oat's was found to be resistant to Group 1 (ACCASE Inhibitors
- 2014 Kochia was found to be resistant to Group 9 (Glyphosate)

Herbicide-Resistance Basics

 Herbicide resistance is the inherited ability of a plant to survive a herbicide application to which the original populations were susceptible. Resistant plants occur naturally within a population. They differ slightly in genetic makeup from the original populations, but they remain reproductively compatible with them.



Herbicide resistant plants initially are present in a weed population in extremely low numbers About 1 in 100,000 to more than 1 in 1,000,000



The repeated use of the same herbicide or of herbicides that kill the plant the same way (same mode of action) allow these few plants to survive and then reproduce. The number of plants then increase in population until the herbicide no longer controls them.

Planning Your Herbicide Program

 The development of herbicide resistant weeds is strongly linked to repeated use of the same herbicide or of herbicides with the same site of action.

Preventing or Delaying Herbicide Resistance

- Rotating Herbicides
- Rotating Crops
- Using short-residual herbicides
- Cultivating
- Accurate record Keeping
- Planting clean seed
- Practicing integrated weed management

Dealing with Herbicide Resistance

Monitoring fields and right of ways for weed escapes

Preventing weed spread

Rotating crops and tillage systems

Changing Herbicide program

Recognizing Herbicide Resistance

Irregular shaped patches of a single weed species in a field or in a right of way are an indicator of herbicide resistance, especially when

- There are no other apparent problems
- Other weed species are controlled adequately
- No or minimal herbicide symptoms appear on the single uncontrolled weed species
- There has been a previous failure to control the same species in the same area with the same herbicide or with herbicides with the same site of action
- Records show repeated use of one herbicide or of herbicides with the same site of action

What to do if you Suspect Herbicide Resistance

- Do not respray with the same herbicide or with herbicides with the same site of action
- Report your suspicion to a university researcher or extension specialist or to the extension educator in your county (Idaho Department of Agriculture)
- If possible, collect plants or seed that can be used to confirm resistance has developed. However, controlling weed escapes and preventing production of viable seeds are of prime importance.

Canyon Highway District #4 Preemergent Herbicide Applications



CHD#4 SPRAY TRUCKS





Boominator Nozzles

Unit 661 and Unit 694

- 20 PSI
- Nozzle #1165 = 5 foot spray distance
- Nozzle #2651 = 10 foot spray distance

• Unit 795

- 20 PSI
- Nozzle #1876 = 6 foot spray distance
- Nozzle #2651 = 10 foot spray distance
- Nozzle #2650 = 20 foot spray distance

Remember that the wind speed is the actual speed that the wind is blowing. No matter what your application speed is, the wind is your determining factor. A helicopter application is done around **60MPH** and An aerial application is typically at speeds of **120MPH+!**





PREEMERGENT HERBICIDES

- ESPLANADE 200SC
- PERSPECTIVE
- METHOD
- TELAR XP
- FREQUENCY
- PORTFOLIO

- PAYLOAD
- PRODIAMINE
- PLATEAU
- DETAIL
- CLEANTRAXX
- PLAINVIEW

VEGETATION MANAGEMENT HERBICIDES

➤ GLYPHOSATE (RANGER PRO, MADDOG PLUS, GLYPHOSATE PLUS, HONCHO AND OTHERS)

>24D PRODUCTS (PLATOON, BASECAMP AM4, E-2)

>OTHERS

- **≻**LIBERATE
- **≻**GROUNDED
- **≻**ACTAMASTER
- > MSO

Our Spray Schedule

- ➤ Pre-emergence applications will start as soon as February 16th
- ➤ Glyphosate and 2,4-D applications will start around April 16th
- ➤ Milestone applications for the control of Noxious weeds will start around the 15th of September

➤ All Dates are Weather and Wind Dependent

 We use a rotation of herbicides from year to year. We try not to use the same herbicide combination on the same section of road in back to back years

We use a color coordinated system that allows us to easily identify what herbicide combination was used on a year to year basis.

Examples

2019 SPRAY COMBINATIONS

EsplAnade + Perspective

Frequency + Perspective

Frequency

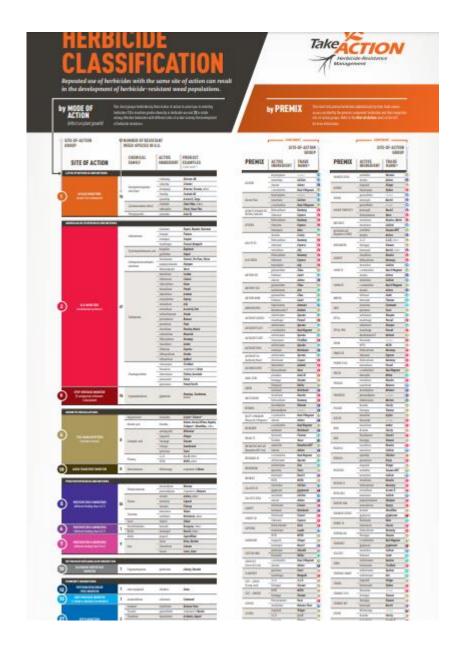
EsplAnade + Cleantraxx

Payload, Prodiamine and EsplAnade 200SC are rotated in Subdivisions

Frequency and Payload

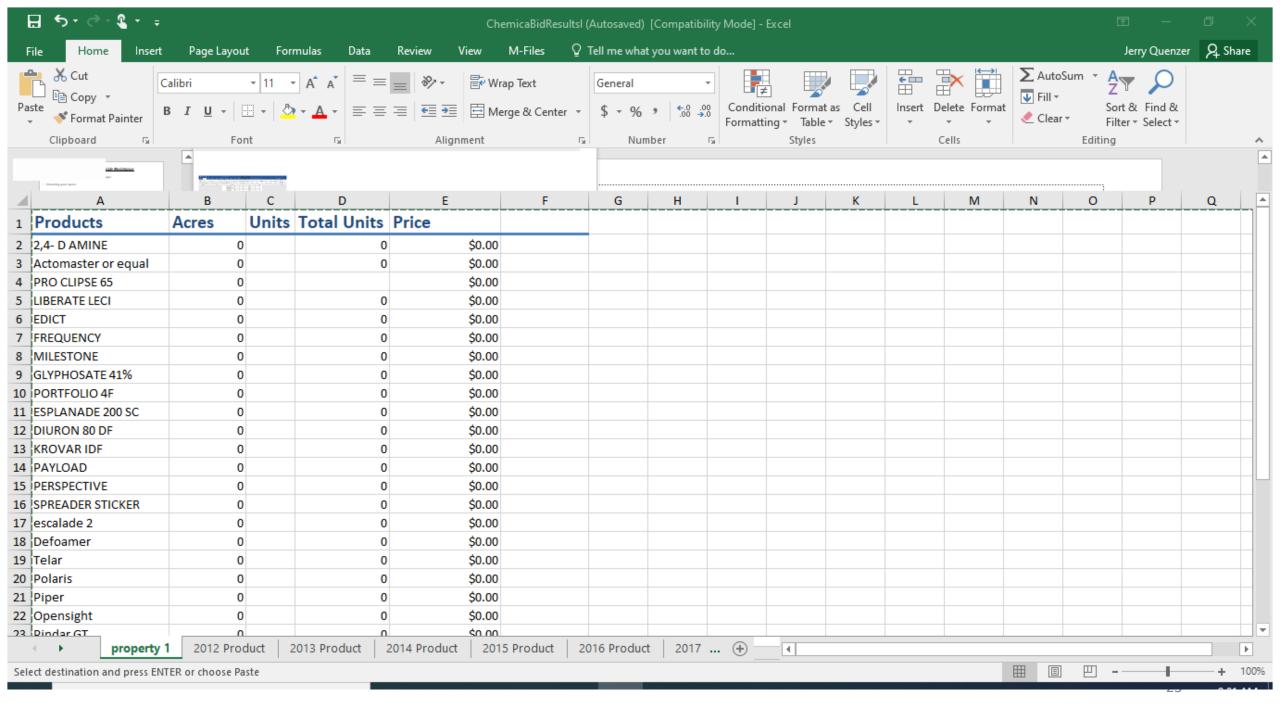
EsplAnade and Frequency

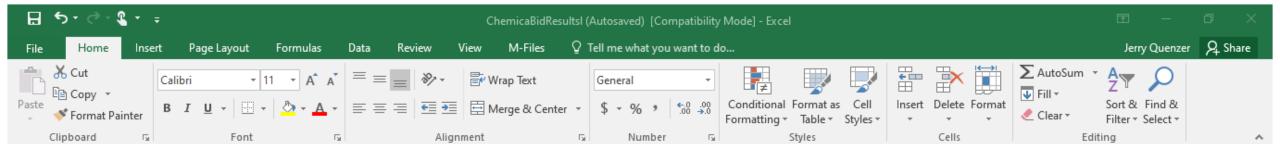
Frequency and Plateau



GROUP NUMBERS FOR THE HERBICIDES WE CURRENTLY USE

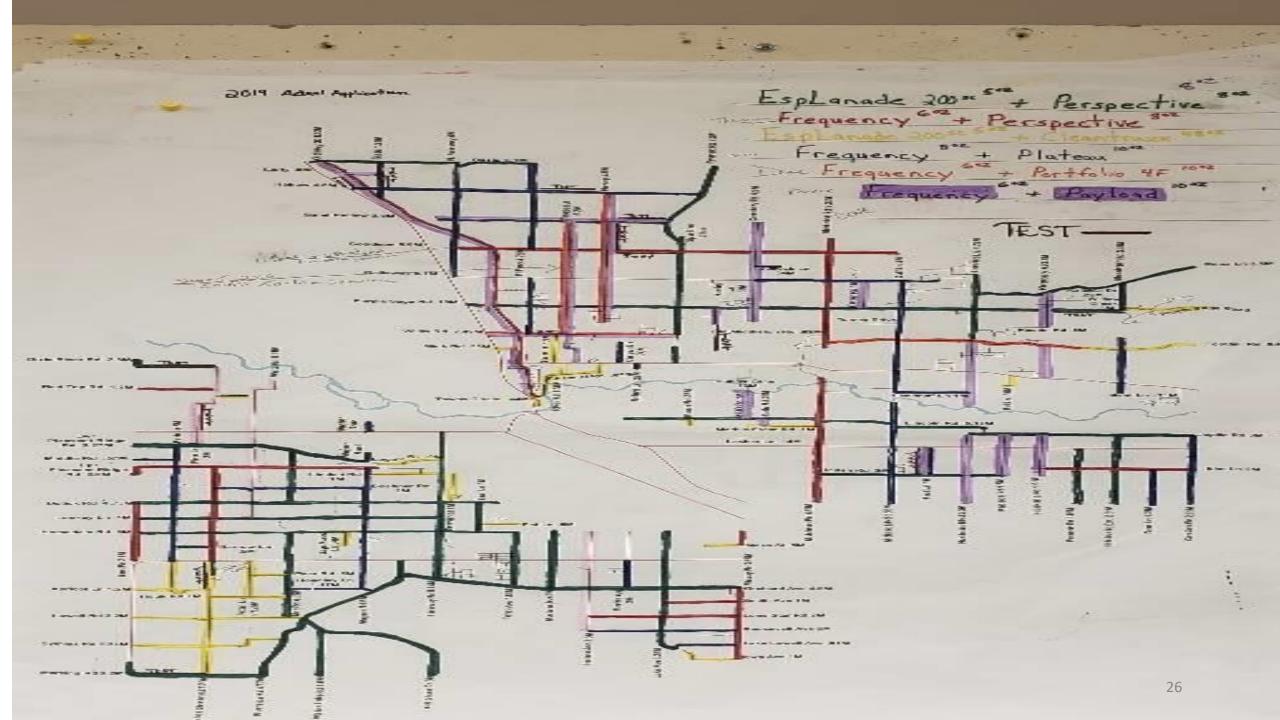
∙.		
	DIURON	7
	FREQUENCY	27
	ESPLANADE 200SC	29
	PERSPECTIVE	2 + 14
	METHOD	4
	TELLAR XP	2
	CLEANTRAXX	2 + 14
	PAYLOAD	14
	PORTFOLIO	14
	MILESTONE	4
	DETAIL	14
	PLATEAU	2
	GLYPHOSATE	9
	2-4D	4
	E-2	4

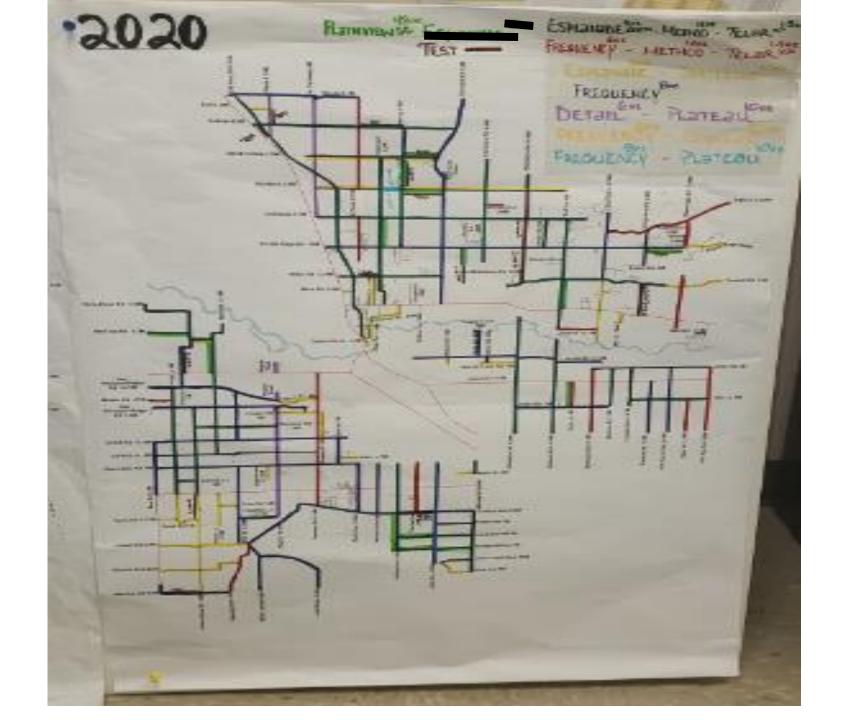


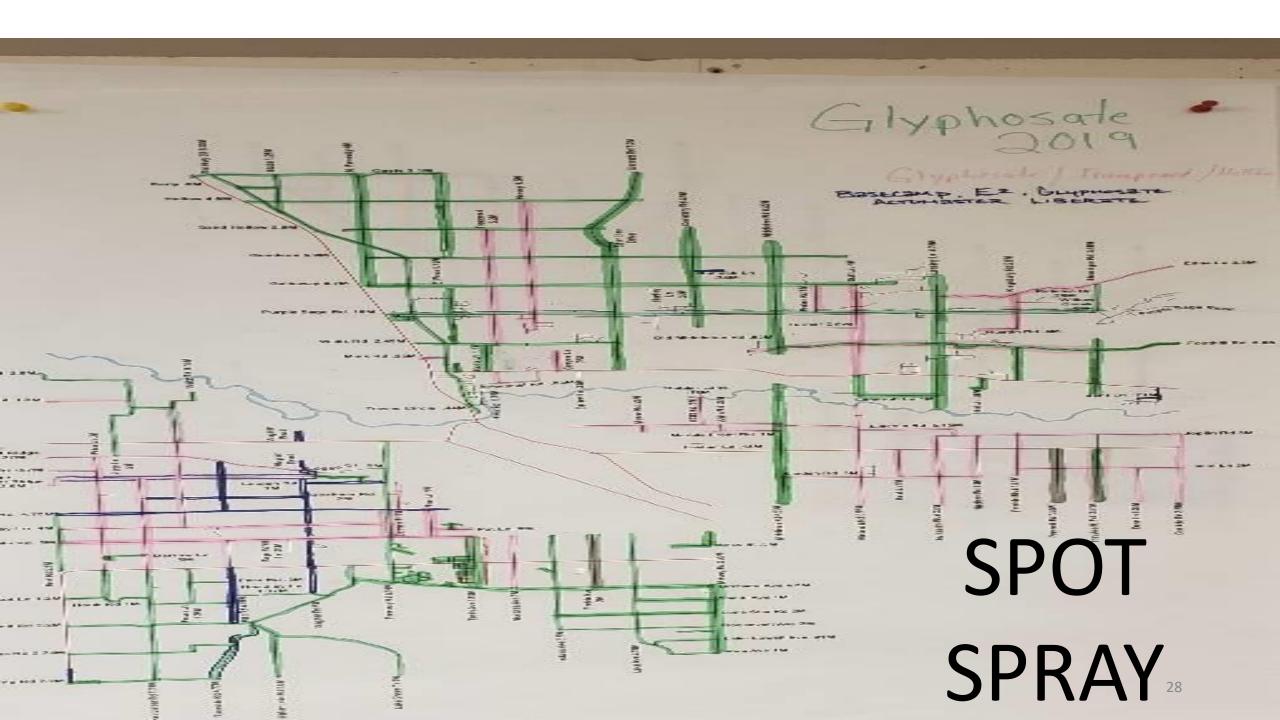


	Α	В (C D	E	F	G	Н	1	J	K	L	M	N	0	P	Q	
7	FREQUENCY	0	0	\$0.00													
8	MILESTONE	0	0	\$0.00													
9	GLYPHOSATE 41%	1	32														
10	PORTFOLIO 4F	0	0	-													
	ESPLANADE 200 SC	1	5														
12	DIURON 80 DF	0	0	-													
13	KROVAR IDF	0	0														
14	PAYLOAD	0	0														
15	PERSPECTIVE	1	8														
16	SPREADER STICKER	0	0														
	escalade 2	0	0														
	Defoamer	0	0														
19	Telar	0	0	-													
	Polaris	0	0	-													
21	Piper	0	0	-													
	Opensight	0	0														
	Pindar GT	0	0														
24	Plateau	0	0	-													
	Grounded	1	1														
	Cleantraxx	0	0														
	Detail	0	0	-													
28	TOTAL			\$92.80													
29																	₩
	property 1	2012 Product	2013 Product	2014 Product 201	5 Product	2016 Product	2017	🕀	4							•	
Ready											+ 10	00%					









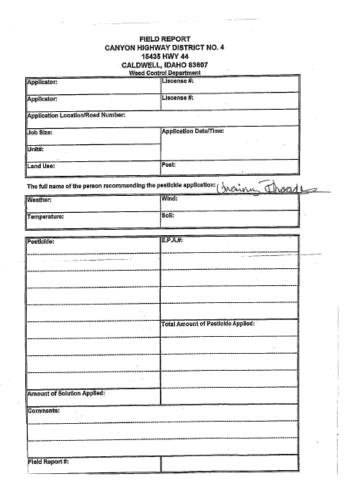
Glyphosate, E-2, Liberate

Glyphosate, Hellfire, Trumpcard

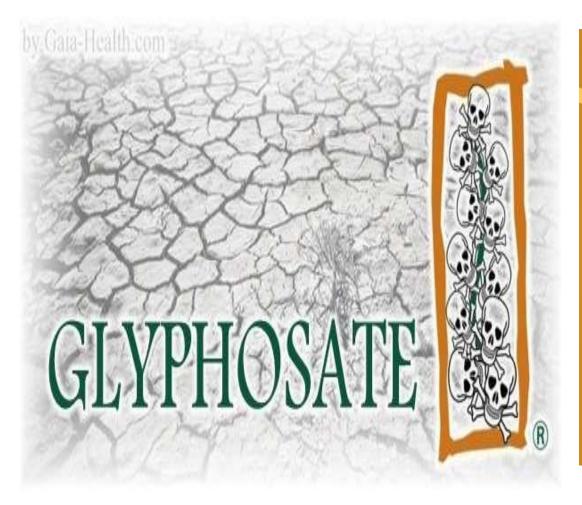
Glyphosate, Basecamp, E-2, Ammonia Sulfate, Liberate

We write down, in a notebook all of our records during the work day and then transfer them to our field report

3-16-19 38°	START @ 8:50	# 23
Мрн	570P @ 9:18	
yauar	MORTHUIEW TO LENSING BOTH &	IDES
DAND	1458 gal 58 acres	
	5.1 gai . Z zizes	
5-16-19	Landruff	#74
40.	STERT 8 9:31	
M ngmi	STOP @ 9:43 COMPLETE BOTH SIDES	
LOUBY	COMPLETE BOTH SIDES	
Damp	50.3 gal Zaces	
	83 921 .3 3666	
3-17-19	Wagner	# 25
33*	STEET & 10:34	
Laim	Stop @ 11:59	
SUMMY	300 gal 12 acres	
DRY	15 gar .6 acres	
	COMPLETE BOTH SIDES	
3-17-19	BOEHNER	# 26
45°	START @ ZOS	
SMPH W	STOP @ 2.56	
PHINE		and the access to the constraint about and
DRY		
1 1	COMPLETE BOTH SIDES	



All preemergent applications are made with 1 quart of glyphosate (per acre) and a deposition aid with drift reduction technology































Salt Grass growing up through the asphalt!



FIELD REPORT.

Canyon Highway District No. 4 15435 Hwy 44 Caldwell, ID 83607

pplicator: Bud BRowlinghow	License #: J@
pplicator:	License #:
pplication Location/Road Name: Kings	bady Falute
ob Size: 2 Agres	Application Date/Time:
nit#: lole!	12-2-09
and Use: Royal Side	Pest: All weed 5
e full name of the person recommending the pe	sticide application; and George Reques
Veather: Sunyy	Wind: Onelhus
Cemperature: 320	Soil: Dan
Dere At 25 gal DE	Diver- APDF 66222-51
Water Diversion ARSF 8 lbs En Acre At 25 gol AF Water	
Amount of Solution Applied:	Total Amount of Pesticide Applied:
50gal	England Da az
	Diveougnor 16/63
	Hours: 7/30 12:15
Milest	













FIELD REPORT Canyon Highway District No. 4 15435 Hwy 44 Caldwell, ID 83607

Weed Contro	l Department
Applicator: Janua Vilenzan.	License #: 9582
Applicator: A Column to	License #:
	Merdous sub
Application Location/Road Name: Fox	III CA BOULS SUL
Job Size: 3 ACR4	Application Date/Time:
Unit #: /do .	Dec 2.09 : 1/38 to 2:06
Land Use: ROAD Sike	Pest: BROAD LEAF Weed'S
The full name of the person recommending the per	sticide application; and Casey Requests
Weather: CHAK	Wind: V3
Temperature: 32	Soil: OLY
Attacher action of the second	
Pesticide: PAYLOAD 1002 par	EPA#: Dayboad 59639-120
ACRE At 25 CLANDINS	Diudon800F (16 222-51
of water	-
Diupon FORFAT BLES per	
NIARON AT CASS PER	
ACREA + 25 callium of water	Total Amount of Pesticide Applied:
Amount of Solution Applied:	70002
15 gallius	Diverse OF OY has
Miles:	Hours:
Comments: // // // // // Comments:	144 ON STOFFLE BA
////	
	1. 17/10
	(with
Field Report #: 592	







Willis Road Photos from May 22, 2013

• 2012 Diuron 80DF @ 8lbs

Payload @ 10oz

• 2013 V-10336 @ 0.844lbs

Telar XP @ 2oz

• 2014 EsplAnade 200SC @ 5oz

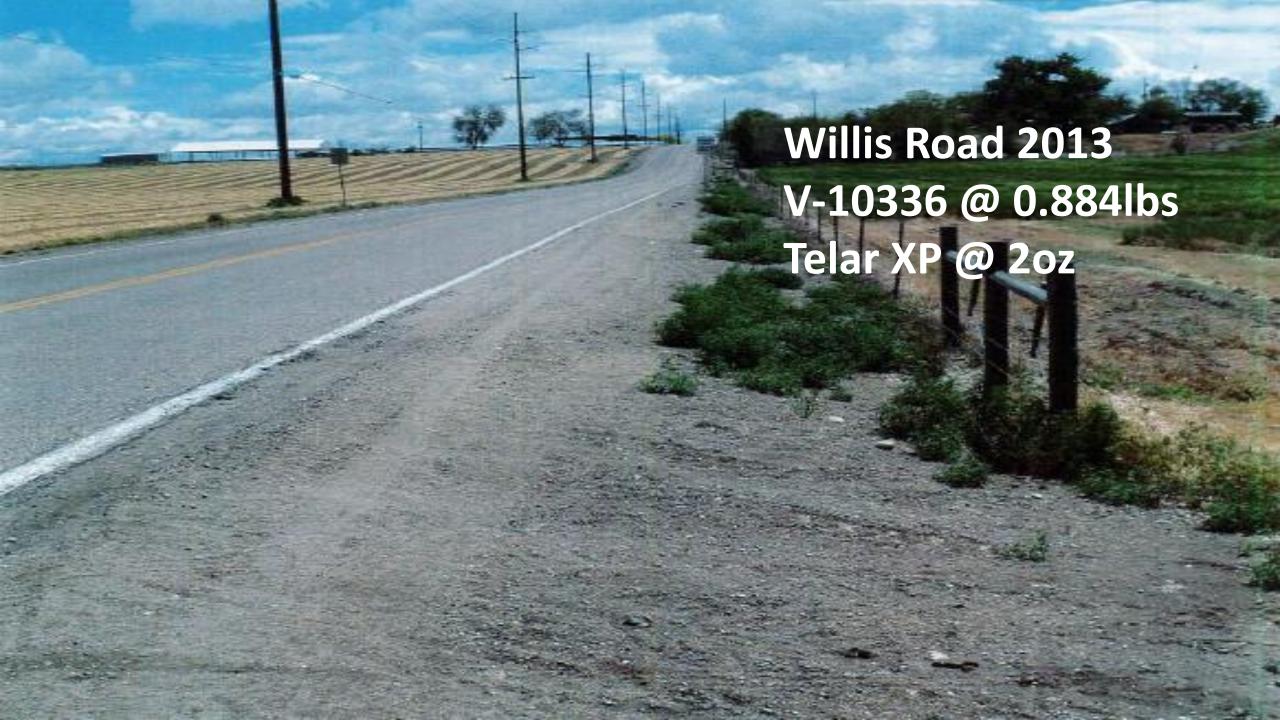
Perspective @ 8oz

Ounces per acre in 25 gallons of water per acre

 2013 was a test spot that we tried a new herbicide. The application was done on March 4, 2013 and the pictures were taken on May 22, 2013







Harvey Road (Sand hollow to Goodson)

East Side		West Side	
• 2018	Esplanade @ 5oz	• 2018	Esplanade @ 5oz
	Frequency @ 6oz		Frequency @ 6oz
• 2019	Frequency @ 6oz	• 2019	Frequency @ 6oz
	Payload @ 10oz		Portfolio 4F @ 10oz
• 2020	Plainview SC @ 48oz	• 2020	Esplanade @ 5oz Method @ 12oz
Ounces per acre in 25 gallons of water per acre			Telar XP @ 1.5oz

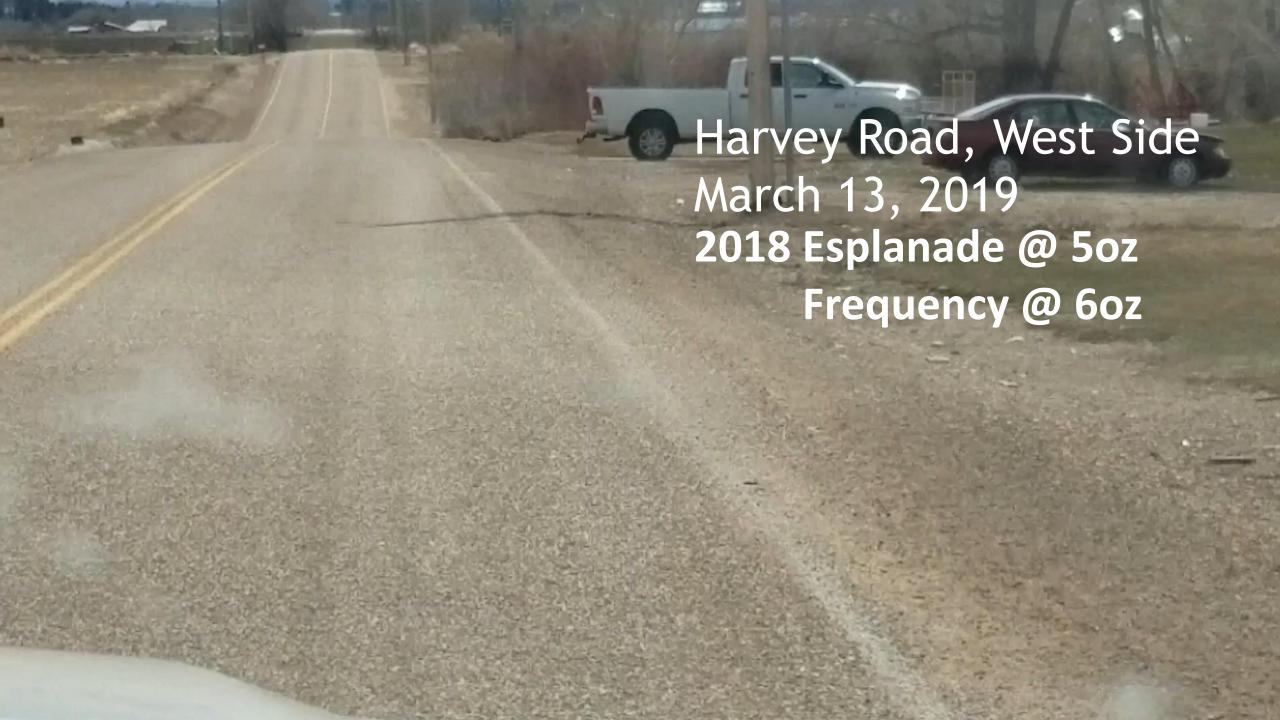
Ounces per acre in 25 gallons of water per acre

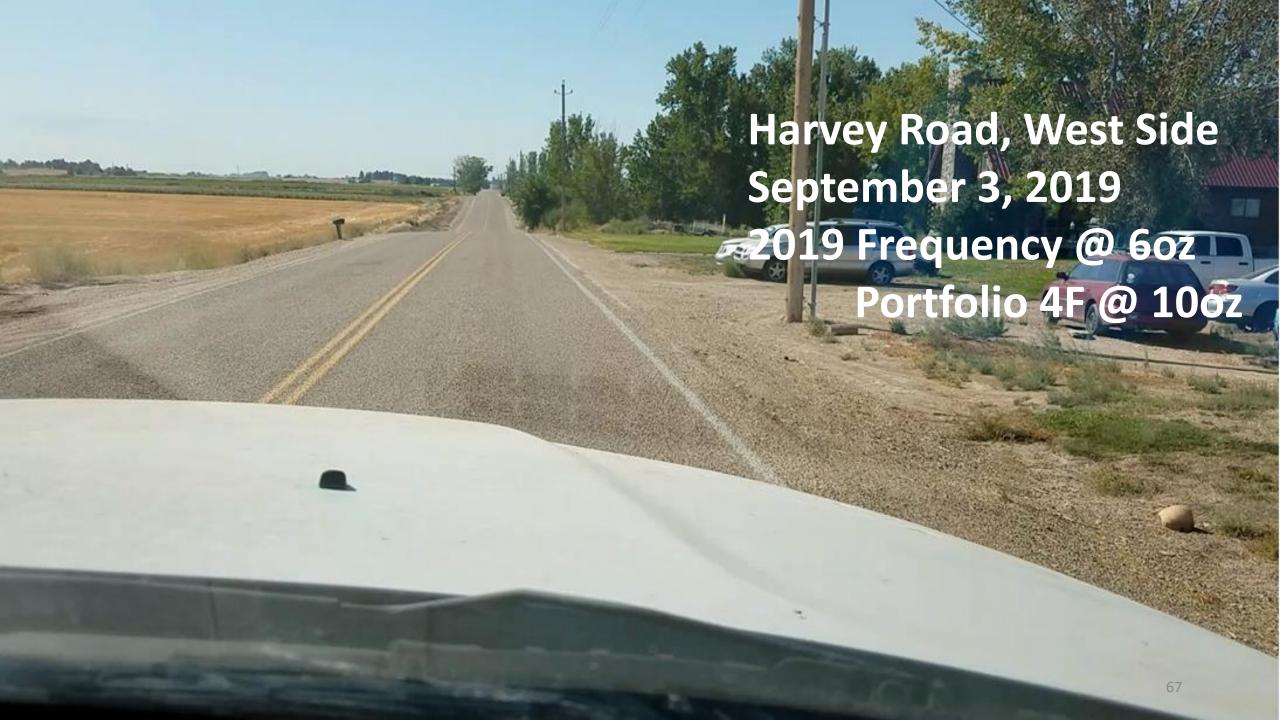












Harvey Road West Side March 13, 2019 2018 Esplanade @ 5oz Frequency @ 6oz



Sand Hollow Road Harvey Road to Emmett Road

	South Side		North Side
• 2018	Frequency @ 6oz	• 2018	Frequency @ 8oz
	Perspective @ 8oz	• 2019	Frequency @ 6oz
• 2019	Esplanade @ 5oz		Payload @ 10oz
	Perspective @ 8oz	• 2020	Plainview SC @ 48oz
• 2020	Frequency @ 6oz Payload @ 10oz	Ounces per acre in 25 gallons of water per acre	

Ounces per acre in 25 gallons of water per acre



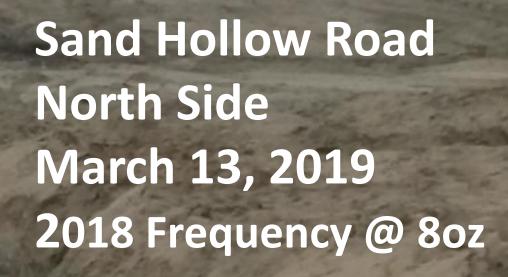


Application Line

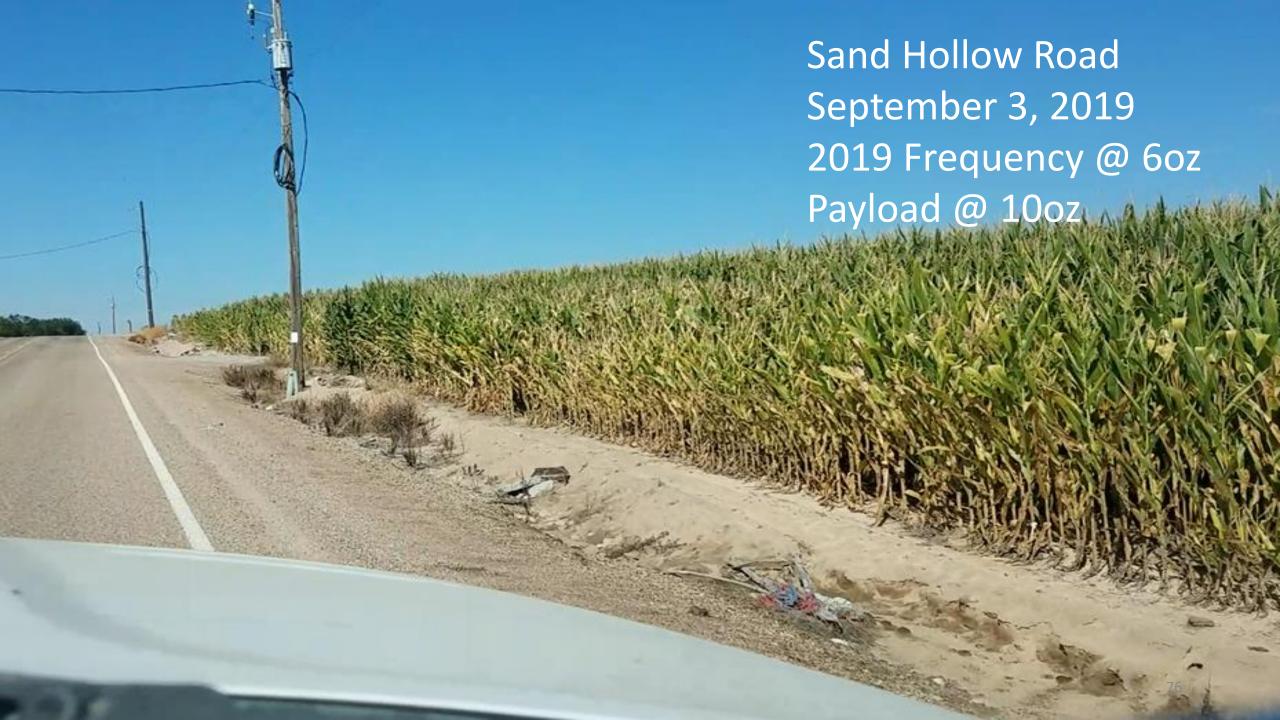
Sand Hollow Road
South Side
March 13, 2019
2018 Frequency @ 6oz
Perspective @ 8oz

2019 Esplanade @ 5oz Perspective @ 8oz Sand Hollow Road South Side September 3, 2019





Grass is growing in the bottom of the borrow ditch, our road side remains clear.





Hartley Road Willis Road to Purple Sage Road

	West Side		East Side	
• 2018	Esplanade @ 5oz	• 2018	Esplanade @ 5oz	
	Frequency @ 6oz		Frequency @ 6oz	
• 2019	Frequency @ 6oz	• 2019	Frequency @ 6oz	
	Payload @ 10oz		Payload @ 10oz	
• 2020	Esplanade @ 5oz	• 2020	Plainview SC @ 48oz	
	Method @ 12oz			
	Telar XP @ 1.5oz	Ounces per ac	cre in 25 gallons of water	
Ounces per acre in 25 gallons of		<u>per acre</u>		
<u>water per acre</u>				















Purple Sage Road (Between Kingsbury and Blessinger)

South Side		North Side	
• 2018	Payload @ 10oz Diuron @ 8lbs	• 2018	Payload @ 10oz Diuron @ 8lbs
• 2019	Esplanade @ 5oz Perspective @ 8oz	• 2019	Esplanade @ 5oz Perspective @ 8oz
• 2020	Plainview SC @ 48oz	• 2020	Frequency @ 8oz
Ounces per acre in 25 gallons of water per acre		Ounces per acre in 25 gallons of water per acre	

















Chicken Dinner Road (East side problem area)

• 2018 Esplanade @ 5oz

Cleantraxx @ 48oz

• 2019 Esplanade @ 5oz

Perspective @ 8oz

• 2020 Esplanade @ 5oz

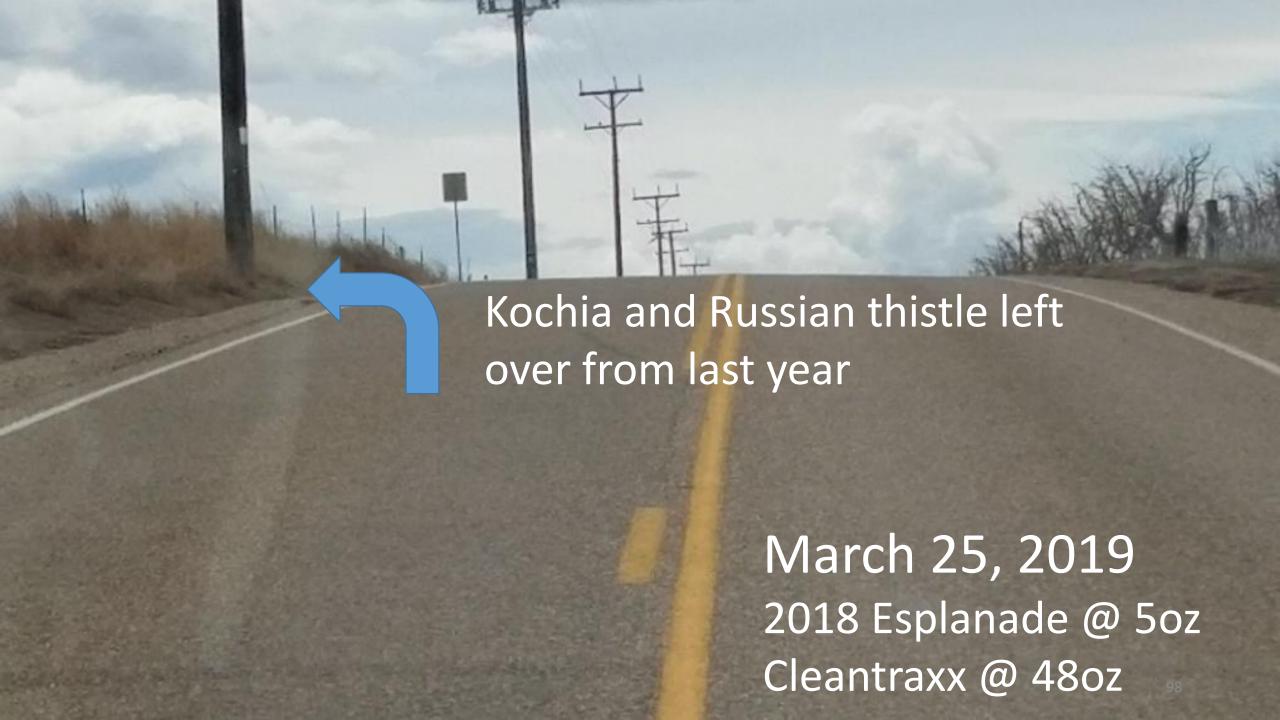
Portfolio @ 10oz

Ounces per acre in 25 gallons of water per acre

There is a small section here that we have been fighting to keep the Koshia and Russian thistle from coming back in to our right of way. Most of the road side is fruit trees so we have to be extra careful with what we apply. We tried something a little bit different this year and have been pleasantly surprised.









Knot Lane

	West Side		East Side
• 2018	Esplanade @ 5oz	• 2018	Esplanade @ 5oz
	Perspective @ 8oz		Perspective @ 8oz
• 2019	Frequency @ 6oz	• 2019	Frequency @ 8oz
	Payload @ 10oz		Plateau @ 10oz
• 2020	Detail @ 6oz	• 2020	Plainview SC @ 48oz
	Plateau @ 10oz	Ounces per	acre in 25 gallons of water
Ounces per acre in 25 gallons of water		<u>per acre</u>	
<u>per acre</u>			

















Marsing Road Between Chicken Dinner and Hwy 55

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	. •			U	\sim

• 2018 Esplanade @ 5oz

Diuron @ 10lbs

• 2019 Esplanade @ 5oz

Perspective @ 8oz

• 2020 Frequency @ 8oz

Ounces per acre in 25 gallons of water per acre

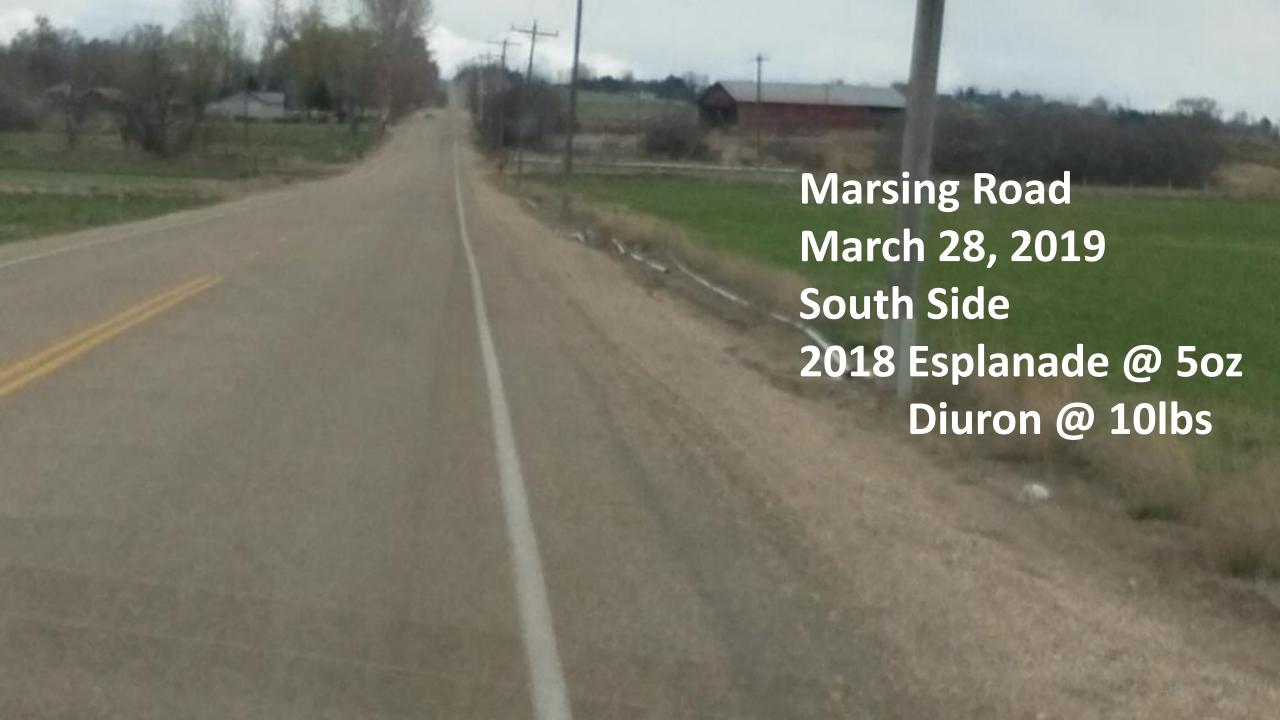
Both sides have been the same chemical combination's for the previous 3 years.













Hollow Road Between El Paso and Harvey

North Side		South Side		
• 2018	Esplanade @ 5oz Perspective @ 6oz	• 2018	Esplanade @ 5oz Perspective @ 6oz	
• 2019	Frequency @ 8oz Plateau @ 10oz	• 2019	Frequency @ 8oz Plateau @ 10oz	
• 2020	Esplanade @ 5oz Method @ 12oz Telar Xp @ 1.5oz	2020Ounces per per acre	Plainview SC @ 48oz acre in 25 gallons of water	

Ounces per acre in 25 gallons of water per acre

















Slade Road Between Hollow Road and Early Road

	Dotti Sides		
• 2018	Esplanade @ 5oz		

Roth Sides

Perspective @ 8oz

• 2019 Frequency @ 8oz

• 2020 Detail @ 6oz Plateau @ 10oz

Ounces per acre in 25 gallons of water per acre.

Both sides of this road are the same chemical. In 2015 this road was not sprayed with preemergent in the spring and was not noticed until early May. It was sprayed on March 26, 2014 with 8oz of Frequency.



Slade Road May 7, 2015

March 26, 2014 Frequency @ 8oz















Pinto Road East Side Between Highway 19 and Dixie River

		• 1	
			\sim
Last	7		_
		'	

• 2018 Frequency @ 6oz

Perspective @ 8oz

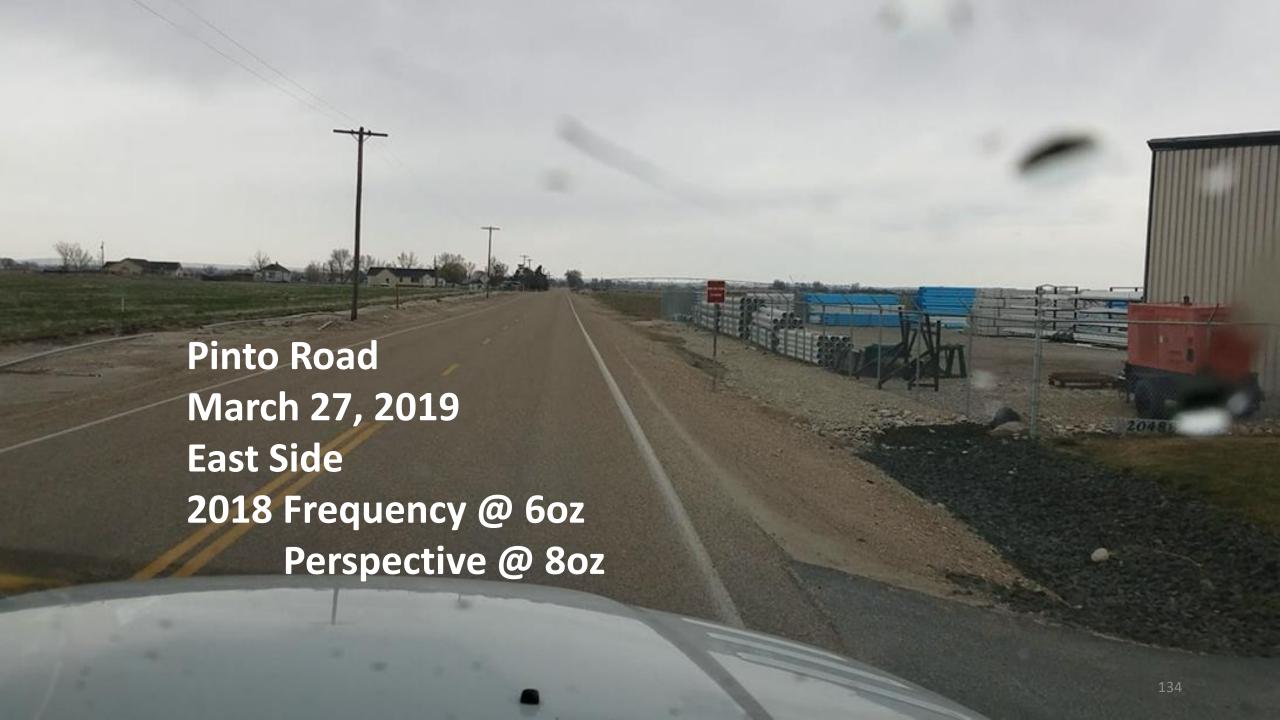
• 2019 Milestone @ 7oz

Esplanade @ 5oz

• 2020 Frequency@ 8oz

Both sides of the road have received the same herbicide combination for the previous 3 years. This road also receives a lot of irrigation to the right of way due to the sprinklers.

Ounces per acre in 25 gallons of water per acre













The next several pictures are of roads outside of our highway district!

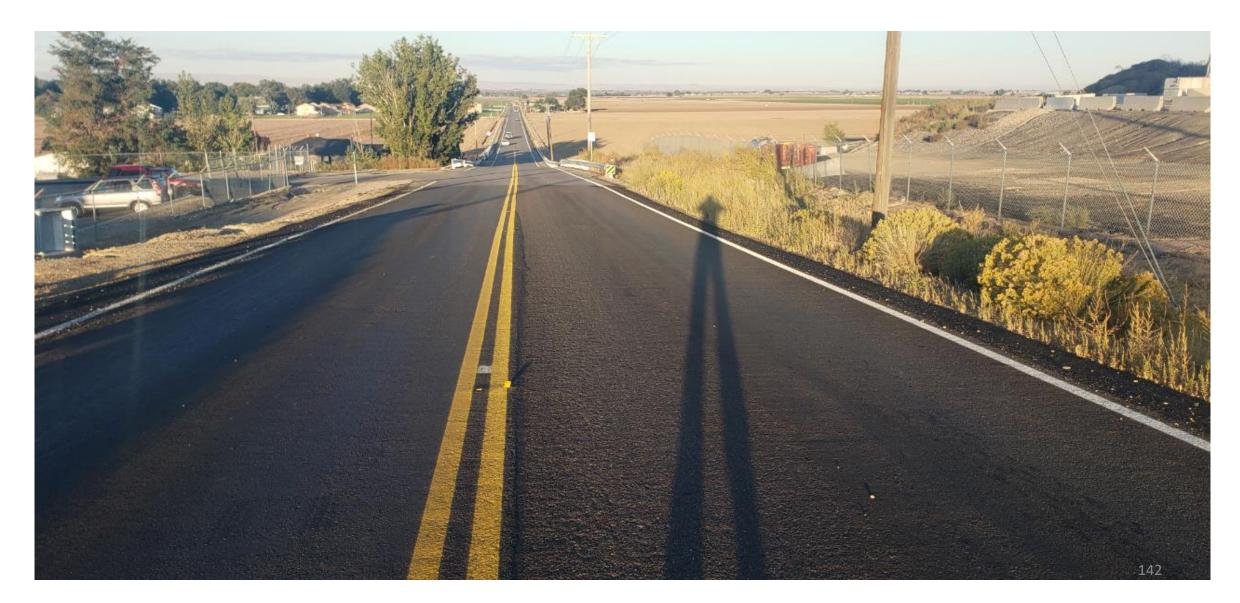
The road just outside our yard

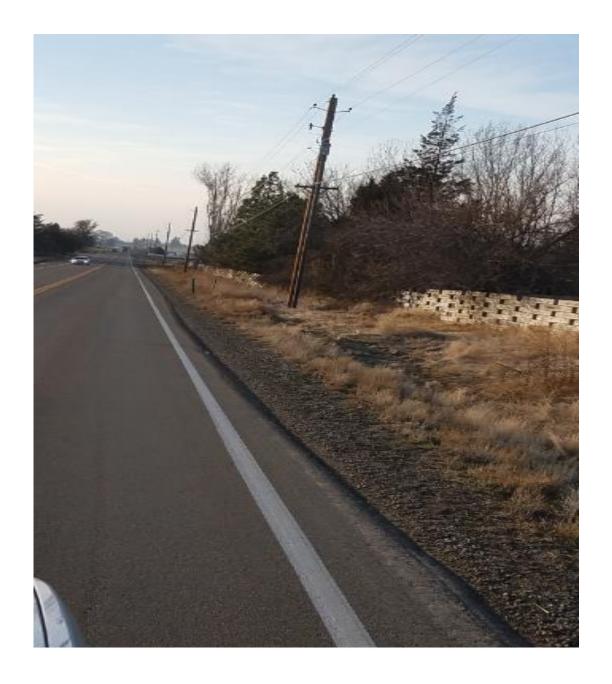
Our Side Not Our Side





Entering Our Yard



















Thank You

Questions?

Canyon Highway District No. 4 (208) 454-8135