

Table 1. Effect of Plainview SC for long-term bare-ground control of kochia in a non-crop location near Hettinger, ND comparing early-fall, late-fall, early-spring, and late-spring application timings and comparing use of flat fan with flood nozzle application, 2022-23.

Herbicide Treatment ^a	Rate oz/A	Timing ^b	Nozzle ^c	Kochia			
				240 DAA ^d	272 DAA	303 DAA	331 DAA
				percent control			
1 Untreated				0 f	0 e	0 h	0 h
2 Plainview SC	32	Sep	FF	96 a-d	94 cd	95 b-f	89 def
3 Plainview SC	48	Sep	FF	100 a	100 ab	99 abc	100 a
4 Plainview SC	64	Sep	FF	100 ab	100 a	100 abc	100 a
5 Plainview SC	32	Sep	Flood	98 abc	97 abc	99 abc	94 a-e
6 Plainview SC	48	Sep	Flood	100 ab	100 ab	99 abc	98 abc
7 Plainview SC	64	Sep	Flood	100 ab	99 ab	100 abc	100 a
8 Plainview SC	32	Oct	FF	100 abc	100 ab	100 a	100 a
9 Plainview SC	48	Oct	FF	100 ab	100 ab	100 a	99 ab
10 Plainview SC	64	Oct	FF	100 ab	100 a	100 ab	100 a
11 Plainview SC	32	Oct	Flood	100 a	100 a	100 ab	100 a
12 Plainview SC	48	Oct	Flood	100 ab	100 ab	100 a	100 a
13 Plainview SC	64	Oct	Flood	100 ab	100 ab	100 a	100 a
14 Plainview SC	32	Apr	FF	99 abc	98 ab	97 a-e	90 c-f
15 Plainview SC	48	Apr	FF	100 abc	97 abc	94 c-f	91 b-f
16 Plainview SC	64	Apr	FF	100 ab	99 ab	100 a	100 a
17 Plainview SC	32	Apr	Flood	92 d	96 bcd	89 g	75 g
18 Plainview SC	48	Apr	Flood	100 ab	97 abc	90 fg	86 f
19 Plainview SC	64	Apr	Flood	100 a	100 ab	98 a-d	93 a-f
20 Plainview SC	32	May	FF	84 e	93 cd	90 fg	86 ef
21 Plainview SC	48	May	FF	86 e	94 cd	91 efg	90 c-f
22 Plainview SC	64	May	FF	83 e	92 d	92 d-g	94 a-d
23 Plainview SC	32	May	Flood	93 d	100 a	97 a-d	96 a-d
24 Plainview SC	48	May	Flood	95 bcd	99 ab	96 a-f	94 a-f
25 Plainview SC	64	May	Flood	95 cd	100 ab	98 a-d	97 a-d
LSD P=.05				4.86	4.54	5.91	8.37
Standard Deviation				3.45	3.22	4.19	5.94
CV				3.71	3.41	4.52	6.52
Treatment F				134.657	151.226	89.107	44.859
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001

^a Roundup Pro Concentrate (64 oz/A) and NIS (0.25 % v/v) was added to all treatments. Plainview SC, indaziflam, imazapyr, aminocyclopyrachlor.

^b Treatment dates: Sep, 9/27/22; Oct, 10/31/22; Apr, 4/24/23; May, 5/16/23

^c Nozzle type: FF, Flat fan (DG 11002), Flood, Single nozzle flood-jet (FC-XT020)

^d DAA is days after application for the September 27, 2022 application date.

Table 2. Description of herbicide application and equipment for treatments applied for bare-ground control of kochia near Hettinger, ND, 2022-23.

Application Description								
Date	9/27/22	9/27/22	10/31/22	10/31/22	4/24/23	4/24/23	5/16/23	5/16/23
Start Time	9:05AM	9:30AM	11:16AM	11:46AM	10:07AM	10:25AM	4:00PM	4:20PM
Stop Time	9:30AM	10:05AM	11:41AM	12:18PM	10:27AM	10:45AM	4:14PM	4:35PM
Air Temp (F)	61	63	60	60	50	51	77	78
Rel. Humid (%)	50	49	33	31	31	29	29	29
Wind Speed (mph)	2.1	2.9	5	8.5	7.8	6	1.4	2.6
Soil Temp (F)	40	40	40	40	33	33	68	68
Cloud (%)	0	0	30	30	10	10	100	100

Application Equipment								
Spayer Type	Backpack	Backpack	Backpack	Backpack	Backpack	Backpack	Backpack	Backpack
Pressure	35 PSI	35 PSI	35 PSI	35 PSI	35 PSI	35 PSI	35 PSI	35 PSI
Nozzle Model	DG11002	FC-XT020	DG11002	FC-XT020	DG11002	FC-XT020	DG11002	FC-XT020
Nozzle Type	FLAFAN	FLOOD	FLAFAN	FLOOD	FLAFAN	FLOOD	FLAFAN	FLOOD
Space (in)	19	0	19	0	19	0	19	0
Boom Length	76	0	76	0	76	0	76	0
Boom Ht (in)	18	18	18	18	18	18	18	18
Speed (mph)	2.4	2.75	2.4	2.75	2.4	2.75	2.4	2.75
Volume (gal/A)	25	25	25	25	25	25	25	25
Propellant	CO2	CO2	CO2	CO2	CO2	CO2	CO2	CO2

A trial was conducted to compare three rates of Plainview, combination of indaziflam, imazapyr, and aminocyclopyrachlor, at four different application dates using either a flat fan spray boom or a single flood-typed nozzle for controlling kochia in a bare-ground application in a non-crop area near Hettinger, ND. Glyphosate (Roundup Pro Concentrate at 64 oz/A) plus a non-ionic surfactant (NIS at 0.25% v/v) was added to all Plainview treatments. Plainview was applied on September 27 and October 31, 2022, and on April 24 and May 16, 2023. Treatments were applied in a feedlot field heavily infested with kochia. Treatments were evaluated for control beginning on May 25, 2023 and monthly thereafter. Fall applications, regardless of nozzle type, provided more consistent control of kochia throughout the final rating at 331 days after the first application. For April application, the flat fan nozzle provided more consistent kochia control compared with the flood type nozzle. However, kochia control was similar comparing nozzle types for the May application timing. Most treatments provided 90 to 100% control of kochia throughout the rating period. Treatments will be evaluated again in the spring of 2024.