

Table 8. Timing of preplant herbicide application for weed control in soybean at Hettinger, ND 2021-22.

Treatment	Rate oz/A	Timing	Kochia	C mallow %	Angrass	P lettuce	Yield BU/A
Untreated			0 j	0 g	0 f	0 d	15 f
Valor	3	A	48 hi	56 ef	21 f	60 bc	22 b-e
Roundup PowerMax3	20	A					
Valor	3	B	49 ghi	85 abc	65 cde	100 a	18 ef
Roundup PowerMax3	20	B					
Valor	3	C	43 i	61 def	85 a-d	96 a	22 b-e
Roundup PowerMax3	20	C					
Valor	3	A	57 e-i	72 b-e	83 a-d	81 ab	23 bcd
Zidua SC	5	A					
Roundup PowerMax3	20	A					
Valor	3	B	67 b-g	94 a	85 a-d	100 a	24 a-d
Zidua SC	5	B					
Roundup PowerMax3	20	B					
Valor	3	C	53 f-i	84 a-d	97 ab	100 a	22 b-e
Zidua SC	5	C					
Roundup PowerMax3	20	C					
BroadAxe	32	A	64 c-h	66 c-f	48 e	20 d	22 b-e
Roundup PowerMax3	20	A					
BroadAxe	32	B	62 d-h	70 cde	52 e	96 a	23 bcd
Roundup PowerMax3	20	B					
BroadAxe	32	C	54 f-i	57 ef	53 e	0 d	23 bcd
Roundup PowerMax3	20	C					
Authority Supreme	9.8	A	77 a-d	83 a-d	86 a-d	91 a	20 de
Roundup PowerMax3	20	A					
Authority Supreme	9.8	B	73 a-f	86 abc	61 de	94 a	25 abc
Roundup PowerMax3	20	B					
Authority Supreme	9.8	C	77 a-d	80 a-d	90 abc	81 ab	23 bcd
Roundup PowerMax3	20	C					
Authority MTZ	18	A	76 a-e	78 a-e	84 a-d	100 a	25 ab
Roundup PowerMax3	20	A					
Authority MTZ	18	B	85 ab	92 ab	73 b-e	100 a	25 abc
Roundup PowerMax3	20	B					
Authority MTZ	18	C	82 abc	87 abc	98 ab	98 a	27 a
Roundup PowerMax3	20	C					
Xtendimax	22	C	63 d-h	48 f	15 f	56 c	22 b-e
Roundup PowerMax3	20	C					
Xtendimax	22	D	83 abc	80 a-d	93 ab	93 a	21 cde
Roundup PowerMax3	20	D					
Roundup PowerMax3	20	C	78 a-d	97 a	94 ab	100 a	25 abc
Roundup PowerMax3	20	D					
Roundup PowerMax3	20	C	87 a	97 a	100 a	100 a	22 b-e
BroadAxe	32	C					
Roundup PowerMax3	20	D					
LSD P=.10			18.62	21.7	26.75	22.18	4.14
CV			24.68	24.92	32.6	24.12	15.61
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0045

*Treatment timings were: A, 5/6/2022; B, 5/16/2022; C, 5/28/2022; D, 6/23/2022

Abbreviations: C mallow, common mallow; Angrass, annual grass (barnyardgrass, green foxtail); BU/A, bushels per acre.

Application Description	Timing			
	A	B	C	D
Application Date	5/6/2022	5/16/2022	5/28/2022	6/23/2022
Appl. Start Time	4:37 PM	11:20 AM	9:36 AM	2:56 PM
Appl. Stop Time	5:10 PM	11:50 AM	10:10 AM	3:07 PM
Application Method	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	PPL 2WBP	PPL 1WBP	PRE	POST
Application Placement	BROADC	BROADC	BROADC	BROADC
Applied By	CDD	CDD	CDD	CDD
Appl. Entry Date	6/6/2022	6/6/2022	5/31/2022	7/25/2022
Air Temp Start, Stop	75, 71 F	70.7, - 71.5 F	74.7, 74.7 F	87, - F
% RH Start, Stop	29, 43	36.5, -	43.8, 46.2	37, -
Wind Velocity+Dir. Start	8.0 MPH, W	9 MPH, SE	1.9 MPH, NNW	6 MPH, SSE
Wind Velocity+Dir. Stop	7.5 MPH, ESE	9 MPH, SE	2.1 MPH, E	
Wind Velocity+Dir. Max	16 MPH, W	17.3 MPH, SE	5.6 MPH, ENE	10 MPH, SSE
Wet Leaves (Y/N)	N, no	N, no	N, no	N, no
Soil Temperature	63 F	57 F	58 F	81 F
Soil Moisture	GOOD	GOOD	GOOD	GOOD
% Cloud Cover	70	10	95	20
Next Moisture	5/9/2022	5/19/2022	5/30/2022	6/25/2022
Moisture 1 Week after App	1.24 IN	0.50 IN	0.36 IN	0.02

*Abbreviations: PPL 2WBP/1WBP, preplant 2/1 weeks before planting; PRE, preemergence at planting; POST, postemergence to crop and weeds (V1 soybeans)

Application Equipment	Timing			
	A	B	C	D
Equipment Type	SPTRMO	SPTRMO	SPTRMO	SPTRMO
Operation Pressure	35 PSI	35 PSI	35 PSI	32 PSI
Nozzle Model	11002	11002	11002	11002
Nozzle Type	DRINED	DRINED	DRINED	DRINED
Nozzle Spacing	20 IN	20 IN	20.0 IN	20 IN
% Coverage	100	100	100	100
Boom Length	100 IN	100 IN	100 IN	100 IN
Boom Height	20.0 IN	20.0 IN	22.0 IN	22.0 IN
Ground Speed	3.3 MPH	3.3 MPH	3.3 MPH	2.6 MPH
Carrier	WATER	WATER	WATER	WATER
Application Amount	10 GAL/AC	10 GAL/AC	10 GAL/AC	15 GAL/AC
Mix Size	2 L	2 L	2 L	2 L
Propellant	CO2	CO2	CO2	CO2
Tank Mix (Y/N)	Yes	Yes	Yes	Yes

*Xtendimax treatments were applied using TTI (air induction) drift reducing nozzles.

**Abbreviations: SPTRMO, tractor mounted sprayer; DRINED, drift reduction.