



[Environment Horticulture Program Research Summaries](#)

IR-4 Environmental Horticulture Program Bentazon Crop Safety

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Abstract

Basagran T/O has been registered for several years as a directed application and as an over-the-top application on limited plant species. However, growers have expressed the need to have additional plants added for over-the-top applications. Data collected throughout the history of the IR-4 Environmental Horticulture Program are presented here to support specific Basagran T/O applications over the top of certain ornamental horticulture plants. The rates chosen for this research were 1.0, 2.0 and 4.0 pounds active ingredient per acre (lb ai per A) as the 1X, 2X and 4X rates. In addition, early studies compared single versus two consecutive applications of 1.0 lb ai per A or 2.0 lb ai per A followed with 1 lb ai per A. Throughout the years, 104 different crop species/genera were examined for over the top applications. Of these, Seventeen exhibited no or minimal transient injury after application at all three rates. Thirty-five crops require further research because of unclear results. Fifteen crops exhibited no phytotoxicity at 1.0 lb ai per acre but did have some injury at the higher rates or with repeat applications. Thirty-six species exhibited phytotoxicity at even the 1.0 lb ai per acre rate.

Introduction

Basagran T/O (bentazon) has been registered for several years with directed and over-the-top applications on limited plant species. However, growers have expressed the need to have additional plants added for over-the-top applications. IR-4 studied over the top applications in 2018 and 2021 to further expand this label in particular for additional woody crops and ornamental grasses.

Materials and Methods

Single applications were made with Basagran T/O (bentazon) or two applications were made approximately 30 days apart. The application rates were 1.0, 2.0, and 4.0 lb ai per A, plus a water treated control. A minimum of four plants (replicate treatments) were required with many researchers exceeding this minimum. Phytotoxicity was recorded on varying scales. Some researchers recorded on a scale of 0 to 10 (0 = No phytotoxicity; 10 = Complete kill). Some researchers used a scale of 1 to 10 with 10 being no phytotoxicity and 1 being complete kill. Other researchers estimated percent foliage affected with 100% meaning kill. For more detailed materials and methods, please see individual research reports posted on the IR-4 website. For recent IR-4 testing, the following protocols were used: 18-013, 18-019, 20-022 and 21-022. Please visit <https://www.ir4project.org/ehc/ehc-registration-support-research/env-hort-researcher-resources/#Protocols> to view and download these protocols

Several trials were conducted using directed applications instead of over the top. These trials are included in the summary table (Table 5) but are not summarized in the following results section.

Basagran T/O was supplied to researchers (See list of researchers in Appendix 1) by American Cyanamid, BASF or TopPro depending upon when the research was conducted.

Results and Summary

Efficacy

Several researchers also examined efficacy in addition to crop safety. In this set of research trials, Basagran T/O managed several weed species well: common chickweed, common lambsquarters, common purslane, common sowthistle, and pigweed. The performance for oxalis and yellow nutsedge was variable depending upon researcher, but most reports favored good control. Several weeds were not managed with Basagran T/O applications: annual grass, black willow, brassica, carpetweed, Carolina geranium, crabgrass, cudweed, eclipta, groundsel, marehail, Pennsylvania bittercress, pine, prostrate spurge, ragweed, spurge, and trifolium.

Phytotoxicity

Based on the type and nature of injury seen with Basagran applications in the research conducted from 1977 through 2021, tested plant species were placed into four categories: 1) no significant phytotoxicity or growth differences from the untreated check or any injury was transitory, 2) injury was seen but additional research is warranted to clarify response, 3) no or minimal transitory injury seen at the 1X rate, but the 2X and/or 4X rates did cause significant

phytotoxicity, 4) significant injury sufficient to recommend growers not utilize this product.

In general, Basagran exhibited no or minimal negative impact on a range of plant species (Table 1). Seventeen plant genera or species fell into this category. Some minimal injury may be acceptable for growers if applications are made several weeks to months in advance of crop sale particularly for woody ornamental crops. Fifteen crop species exhibited no or little injury at the 1.0 lb ai per acre rate, but significant phytotoxicity occurred at the 4.0 lb ai per acre rate or with repeat applications (Table 2). It may be prudent to either conduct additional trials or place language on the label indicating applications of Basagran are considered safe at the 1.0 lb ai per acre rate but any higher rate or multiple applications may cause unacceptable injury. There were thirty-six crops in this research that exhibited damage sufficient to recommend growers not utilize Basagran T/O as an over-the-top treatment for pre-emergent weed control (Table 3). There were thirty-five species of plants for which the results were unclear and are suggested as candidates for further research (Table 4).

Please see Table 5 for a list of research on Basagran T/O and the summary of the received results.

Table 1. List of Bentazon treated crops with no or minimal transitory injury.

<i>Antirrhinum majus</i> ¹ (Field Container)	<i>Hemerocallis</i> sp. ¹ (See Norcini)
<i>Buxus</i> sp.	<i>Hosta fortunei</i> ¹
<i>Caryopteris</i> sp. (See Fretz)	<i>Jasminum</i> sp. ¹
<i>Cercis canadensis</i>	<i>Liriope</i> sp. ¹
<i>Cynodon dactylon</i>	<i>Petunia</i> sp. ¹
<i>Euonymus fortunei</i> ¹	<i>Raphiolepis indica</i> ¹
<i>Euonymus japonicus</i> ¹	<i>Taxodium distichum</i> ¹
<i>Festuca glauca</i>	<i>Taxus</i> spp. ¹
<i>Hedera helix</i> L. ssp. <i>Helix</i> ¹	

¹ Already registered for Basagran T&O

Table 2. List of Bentazon treated crops with no or minimal transitory injury seen at the 1X rate, but the 2X or 4X rate did cause significant phytotoxicity

<i>Antirrhinum majus</i> ¹ (Field In-Ground)	<i>Pittosporum tobira</i> ¹
<i>Centaurea cineraria</i> ¹	<i>Podocarpus macrophyllus</i>
<i>Cotoneaster</i> sp. ¹ (single application recommended)	<i>Rhododendron</i> sp. (response may be dependent on cultivar)
<i>Gardenia</i> sp. ¹	<i>Spiraea</i> sp.
<i>Ilex</i> sp. ¹ (single application recommended)	<i>Tagetes</i> sp. ¹ (single application recommended)
<i>Lagerstroemia indica</i> ¹ (See Beste)	<i>Verbena</i> sp.
<i>Myrica cerifera</i> ¹	<i>Viola</i> sp. (single application recommended)
<i>Pinus</i> sp. ¹ (single application recommended)	

¹ Already registered for Basagran T&O

Table 3. List of Bentazon treated crops exhibiting significant injury.

<i>Astilbe x arendsii</i>	<i>Hylotelephium telephium</i>
<i>Astilbe</i> sp.	<i>Impatiens</i> sp. ¹
<i>Betula pendula</i>	<i>Juniperus</i> sp.
<i>Betula platyphylla</i>	<i>Kniphofia</i> sp.
<i>Brassica oleracea</i> ¹	<i>Ophiopogon planiscapus</i>
<i>Canna x generalis</i>	<i>Pennisetum setaceum</i>
<i>Carissa macrocarpa</i>	<i>Phlox</i> sp
<i>Chasmanthium latifolium</i>	<i>Rudbeckia hirta</i>
<i>Cornus florida</i>	<i>Schizachyrium scoparium</i>
<i>Dianthus deltoides</i>	<i>Sedum album</i>
<i>Dicentra</i> sp.	<i>Sedum acre</i>
<i>Echinacea purpurea</i>	<i>Sedum kamtschaticus</i>
<i>Euonymus alatus</i> ¹	<i>Sedum rupestre</i>
<i>Forsythia</i> sp.	<i>Sedum sexamgulare</i>
<i>Gazania linearis</i>	<i>Sedum spurium</i>
<i>Gladiolus</i> sp.	<i>Trachelospermum asiaticum</i>
<i>Hydrangea</i> sp.	<i>Weigela</i> sp.
	<i>Zinnia</i> sp.

Table 4. List of Bentazon treated crops where more research is needed to clarify response

<i>Antirrhinum majus</i> ¹ (Field In-Ground)	<i>Malus</i> sp. ¹
<i>Artemisia</i> sp.	<i>Monarda didyma</i>
<i>Berberis thunbergii</i> ¹	<i>Miscanthus sinensis</i>
<i>Buddleia davidii</i> ¹	<i>Narcissus</i> sp.
<i>Caladium</i> sp.	<i>Ophiopogon jaburan</i>
<i>Calamagrostis acutiflora</i>	<i>Panicum virgatum</i>
<i>Cornus kousa</i>	<i>Photinia</i> sp. ¹ (See Derr)
<i>Cornus sericea</i>	<i>Pyracantha</i> sp.
<i>Cornus alba</i>	<i>Quercus</i> sp.
<i>Cortaderia selloana</i>	<i>Rosa</i> sp.
<i>Crataegus</i> sp.	<i>Salvia splendens</i>
<i>Hedera canariensis</i>	<i>Symphotrichum ericoides</i>
<i>Heuchera</i> sp. ¹	<i>Thuja occidentalis</i> ¹
<i>Hibiscus</i> sp.	<i>Tsuga canadensis</i>
<i>Hosta</i> sp.	<i>Tulipa</i> sp
<i>Koelreuteria bipinnata</i>	<i>Viburnum</i> sp. (response may be dependent on species)
<i>Lavandula</i> sp.	
<i>Ligustrum</i> sp.	
<i>Lilium</i> sp.	

¹ Already registered for Basagran T&O

Table 5. Detailed Summary Crop Safety Testing with Basagran T/O

Notes: Table entries are sorted by crop Latin name. All data received by 3/15/2022 are included.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
10837	Basagran Herbicide (Bentazon)	Garden Snapdragon (<i>Antirrhinum majus</i>) 'Tahiti'	Field Container	Linderman	OR	1991	Over the top	No injury at 1 and 2 lb ai per acre.
10837	Basagran Herbicide (Bentazon)	Garden Snapdragon (<i>Antirrhinum majus</i>)	Field Container	Schreiber	OH	1991	Over the top	No injury at 1 and 2 lb ai per acre.
10846	Basagran Herbicide (Bentazon)	Garden Snapdragon (<i>Antirrhinum majus</i>) 'Scarlet'	Field In-Ground	Senesac	NY	1991	Over the top	No injury with single application; significant phytotoxicity with two applications of 1 lb ai per acre.
20647	Basagran Herbicide (Bentazon)	Sagebrush (<i>Artemisia</i> sp.) Powis Castle	Field In-Ground	Boydston	WA	2004	Over the top	No injury
25195	Basagran Herbicide (Bentazon)	Japanese Barberry (<i>Berberis thunbergii</i>)	Field Container	Senesac	NY	1990	Over the top	No visible injury, but there was a reduction in vigor and fresh weight.
05605	Basagran Herbicide (Bentazon)	Birch (<i>Betula</i> sp.) <i>B. pendula</i>	Field In-Ground	Linderman	OR	1994		No significant injury
05605	Basagran Herbicide (Bentazon)	Birch (<i>Betula</i> sp.) <i>B. platyphylla</i> 'japonica'	Field In-Ground	Schreiber	OH	1990		Significant injury
05605	Basagran Herbicide (Bentazon)	Birch (<i>Betula</i> sp.) <i>B. pendula</i>	Field In-Ground	Senesac	NY	1990	Over the top	About 30% control of yellow nutsedge Significant injury
10835	Basagran Herbicide (Bentazon)	Ornamental Cabbage/Kale (<i>Brassica oleracea</i>) <i>B. oleracea</i> 'Colorup'	Field Container	Linderman	OR	1991	Over the top	No injury.
10821	Basagran Herbicide (Bentazon)	Ornamental Cabbage/Kale (<i>Brassica oleracea</i>) 'Color Up'	Field In-Ground	Linderman	OR	1994	Over the top	No injury.
10835	Basagran Herbicide (Bentazon)	Ornamental Cabbage/Kale (<i>Brassica oleracea</i>) 'Color Up'	Field Container	Linderman	OR	1994	Over the top	No injury.
10835	Basagran Herbicide (Bentazon)	Ornamental Cabbage/Kale (<i>Brassica oleracea</i>)	Field Container	Schreiber	OH	1991	Over the top	No injury.
10835	Basagran Herbicide (Bentazon)	Ornamental Cabbage/Kale (<i>Brassica oleracea</i>) <i>B. oleracea</i> 'Nagoya Garnish White'	Field Container	Senesac	NY	1993	Over the top	Significant injury at 1 and 2 lb ai per acre. Symptoms included discoloration and stunting.
25319	Basagran Herbicide (Bentazon)	Butterfly Bush (<i>Buddleia davidii</i>) 'Black Knight'	Field Container	Derr	VA	2005	Over the top	No injury
25321	Basagran Herbicide (Bentazon)	Boxwood (<i>Buxus</i> sp.)	Field Container	Derr	VA	2005	Over the top	No injury
01233	Basagran Herbicide (Bentazon)	Boxwood (<i>Buxus</i> sp.) <i>B. microphylla</i>	Field In-Ground	Linderman	OR	1994	Over the top	No significant injury
01233	Basagran Herbicide (Bentazon)	Boxwood (<i>Buxus</i> sp.) <i>B. japonica</i> 'Little Gem'	Field In-Ground	Talbert	AR	1990	Over the top	Multiple applications required for good yellow nutsedge control

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
25434	Basagran Herbicide (Bentazon)	Natal Plum, Amatungulu (<i>Carissa macrocarpa</i>) Emerald Blanket	Field Container	Norcini	FL	1991	Over the top	Stunting of vegetative growth increasing with rate.
05561	Basagran Herbicide (Bentazon)	Caryopteris (<i>Caryopteris</i> sp.) <i>C. x clandonensis</i> 'Longwood Blue'	Field In-Ground	Buriff	OH	1997	Directed	No injury.
26133	Basagran Herbicide (Bentazon)	Caryopteris (<i>Caryopteris</i> sp.) <i>C. X clandonensis</i> 'Blue Mist'	Field Container	Fretz	OH	1977	Over the top	Excessive damage increasing with rate (0.75, 1.5, 3, and 6 lb ai per acre)
05561	Basagran Herbicide (Bentazon)	Caryopteris (<i>Caryopteris</i> sp.) <i>C. X clandonensis</i> 'longwood blue'	Field In-Ground	Linderman	OR	1994	Over the top	No significant injury
10832	Basagran Herbicide (Bentazon)	Dusty-Miller, Velvet Centaurea (<i>Centaurea cineraia</i>) 'Diamond'	Field Container	Buriff	OH	1995	Over the top	Extensive injury observed; however some dead plants had <i>Pythium</i> isolated from them so the level of phytotoxicity rated is suspect
10832	Basagran Herbicide (Bentazon)	Dusty-Miller, Velvet Centaurea (<i>Centaurea cineraia</i>) <i>C. cineraria</i>	Field Container	Linderman	OR	1991	Over the top	No injury.
10818	Basagran Herbicide (Bentazon)	Dusty-Miller, Velvet Centaurea (<i>Centaurea cineraia</i>) 'Silverdust'	Field In-Ground	Norcini	FL	1993	Over the top	Applications at 1.0 lb ai per acre had minimal impact; 2 application of 2.0 lb ai per acre resulted in almost complete mortality
10832	Basagran Herbicide (Bentazon)	Dusty-Miller, Velvet Centaurea (<i>Centaurea cineraia</i>)	Field Container	Schreiber	OH	1991	Over the top	No injury.
10832	Basagran Herbicide (Bentazon)	Dusty-Miller, Velvet Centaurea (<i>Centaurea cineraia</i>)	Field Container	Talbert	AR	1995		Slight injury.
00402	Basagran Herbicide (Bentazon)	American Redbud, Eastern Redbud (<i>Cercis canadensis</i>)	Field In-Ground	Buriff	OH	1995	Directed	No injury.
00402	Basagran Herbicide (Bentazon)	American Redbud, Eastern Redbud (<i>Cercis canadensis</i>)	Field In-Ground	Buriff	OH	1996	Directed	No injury.
12303	Basagran Herbicide (Bentazon)	American Redbud, Eastern Redbud (<i>Cercis canadensis</i>) <i>C. canadensis</i>	Field Container	Buriff	OH	1997	Over the top	No injury.
12303	Basagran Herbicide (Bentazon)	American Redbud, Eastern Redbud (<i>Cercis canadensis</i>)	Field Container	Fraelich	GA	1999	Broadcast	No significant injury
25202	Basagran Herbicide (Bentazon)	Dogwood, Tatarian (<i>Cornus alba</i>) <i>sibericus</i>	Field Container	Linderman	OR	1990	Over the top	First application showed no phytotoxicity; second application caused leaf necrosis followed by leaf death.
05562	Basagran Herbicide (Bentazon)	Dogwood, Flowering (<i>Cornus florida</i>)	Field In-Ground	Buriff	OH	1995	Directed	No significant injury
00552	Basagran Herbicide (Bentazon)	Dogwood, Flowering (<i>Cornus florida</i>)	Field Container	Glaze	GA	1992	Over the top	No significant injury; Weed control was fair
00552	Basagran Herbicide (Bentazon)	Dogwood, Flowering (<i>Cornus florida</i>)	Field Container	Schreiber	OH	1991	Over the top	Moderate phytotoxicity to mortality increasing with rate.
25197	Basagran Herbicide (Bentazon)	Dogwood, Kousa (<i>Cornus kousa</i>)	Field Container	Senesac	NY	1991	Over the top	Some injury with two applications of 1 lb ai per acre, but no reduction in vigor or fresh weight.
26134	Basagran Herbicide (Bentazon)	Dogwood, Red Osier (<i>Cornus sericea</i>)	Field Container	Fretz	OH	1977	Over the top	Excessive damage increasing with rate (0.75, 1.5, 3, and 6 lb ai per acre)

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
26144	Basagran Herbicide (Bentazon)	Cotoneaster, Cranberry (Cotoneaster apiculatus) C. apiculata	Greenhouse	Schreiber	OH	1990		Control plants had significant damage; cannot make determination of phyto from this study
00550	Basagran Herbicide (Bentazon)	Cotoneaster (Cotoneaster sp.) C. dammeri 'Royal Beauty'	Field Container	Fretz	OH	1977	Over the top	Excessive damage increasing with rate (0.75, 1.5, 3, and 6 lb ai per acre)
00550	Basagran Herbicide (Bentazon)	Cotoneaster (Cotoneaster sp.) C. microphylla	Field Container	Linderman	OR	1990	Over the top	Single application had no apparent effect; second application severely damaged plants, some to mortality
00550	Basagran Herbicide (Bentazon)	Cotoneaster (Cotoneaster sp.) Moonglo	Field Container	Senesac	NY	1990	Over the top	No visible injury, but slight reduction in vigor and fresh weight.
00550	Basagran Herbicide (Bentazon)	Cotoneaster (Cotoneaster sp.) C. horizontalis 'Rock Spray'	Field Container	Talbert	AR	1990	Over the top	No damage with single or multiple applications
07818	Basagran Herbicide (Bentazon)	Cotoneaster (Cotoneaster sp.) C. horizontalis 'Rock Spray'	Field In-Ground	Talbert	AR	1990	Over the top	15 - 40% control of yellow nutsedge; No damage with single application, some with second application
12305	Basagran Herbicide (Bentazon)	Hawthorn (Crataegus sp.) C. phaenopyrum 'Medic'	Field Container	Buriff	OH	1997	Over the top	No injury.
12305	Basagran Herbicide (Bentazon)	Hawthorn (Crataegus sp.) malus	Field Container	Fraelich	GA	1997	Broadcast	Phytotoxicity increased as rate increased; 1 lb ai per acre exhibited slight injury and mortality occurred at 4 lb ai per acre.
05619	Basagran Herbicide (Bentazon)	Hawthorn (Crataegus sp.) C. phaenopyrum	Field In-Ground	Linderman	OR	1994	Over the top	No injury
00001	Basagran Herbicide (Bentazon)	Bermudagrass (Cynodon dactylon)	Turf	King	AR	1977	Over the top	Minor transient
20664	Basagran Herbicide (Bentazon)	Bleeding Heart (Dicentra sp.)	Field Container	Boydston	WA	2004	Over the top	Moderate to severe injury increasing with rate (1, 2, 4 lb ai per acre).
20640	Basagran Herbicide (Bentazon)	Bleeding Heart (Dicentra sp.)	Field In-Ground	Williams	IL	2003		Minimal injury increasing with rate (1, 2, and 4 lb ai per acre).
20664	Basagran Herbicide (Bentazon)	Bleeding Heart (Dicentra sp.) D. spectabilis	Field Container	Williams	IL	2003	Over the top	Minimal injury
25435	Basagran Herbicide (Bentazon)	Burning Bush (Euonymus alatus) 'Compacta'	Field Container	Senesac	NY	1991	Over the top	Significant reduction in vigor and fresh weight.
02474	Basagran Herbicide (Bentazon)	Spindletree (Euonymus sp.) E. japonicus	Field In-Ground	Derr	VA	1993	Over the top	Slight injury observed.
25320	Basagran Herbicide (Bentazon)	Spindletree (Euonymus sp.) E. fortunei	Field Container	Derr	VA	2005		No injury
02474	Basagran Herbicide (Bentazon)	Spindletree (Euonymus sp.) E. japonicus 'Colerata'	Field In-Ground	Ferree	IL	1995	Over the top	No phytotoxicity.
02474	Basagran Herbicide (Bentazon)	Spindletree (Euonymus sp.) Euonymus sp.	Field In-Ground	Talbert	AR	1979	Over the top	No phytotoxicity at 2.2 kg per hectare; minimal at 4.5 kg per hectare; minor at 9.0 kg per hectare Excellent efficacy for pigweed
02474	Basagran Herbicide (Bentazon)	Spindletree (Euonymus sp.) E. fortunei 'Coloratus'	Field In-Ground	Williams	IL	2003	Over the top	No injury at 1, 2, and 4 lb ai per acre.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
25320	Basagran Herbicide (Bentazon)	Spindletree (Euonymus sp.) Euonymus fortunei 'Coloratus'	Field Container	Williams	IL	2003	Over the top	No injury
02471	Basagran Herbicide (Bentazon)	Forsythia (Forsythia sp.)	Field In-Ground	Ahrens	CT	1977	Over the top	Significant injury increasing with rate
10839	Basagran Herbicide (Bentazon)	Gardenia (Gardenia sp.) gardenium	Field Container	Fraelich	GA	1996	Broadcast	Slight injury at 1 and 2 lb ai per acre; some mortality at 4 lb ai per acre.
10839	Basagran Herbicide (Bentazon)	Gardenia (Gardenia sp.)	Field Container	Glaze	GA	1993	Broadcast	No injury. All plant marketable at the end of the experiment. Trifolium control was poor, brassica control increased with the number of applications.
10814	Basagran Herbicide (Bentazon)	Algerian Ivy, Canary Ivy (Hedera canariensis)	Field In-Ground	Linderman	OR	1994	Over the top	No injury.
10816	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.) 'Stella De Oro'	Field In-Ground	Buriff	OH	1995	Over the top	No significant injury
10830	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.)	Field Container	Linderman	OR	1991	Over the top	No injury.
10816	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.) 'Hyperion'	Field In-Ground	Linderman	OR	1994	Over the top	No significant injury
21435	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.) 'Aztec Gold'	Greenhouse	Norcini	FL	1991	Over the top	Leaf tip chlorosis and necrosis; younger plants recovered by the end of the experiment, older plants did not.
10830	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.)	Field Container	Schreiber	OH	1991	Over the top	No injury.
10830	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.) 'Signal'	Field Container	Senesac	NY	1991	Over the top	Significant reduction in fresh weight and vigor.
10816	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.) Stella de Oro	Field In-Ground	Williams	IL	2003	Over the top	No injury at 1, 2, and 4 lb ai per acre.
10830	Basagran Herbicide (Bentazon)	Daylily (Hemerocallis sp.) 'Stella de Oro'	Field Container	Williams	IL	2005	Over the top	No injury at 1, 2, and 4 lb ai per acre.
20638	Basagran Herbicide (Bentazon)	Alumroot (Heuchera sp.) Heucher x brizoides 'Firefly'	Field In-Ground	Boydston	WA	2004	Over the top	High injury
20638	Basagran Herbicide (Bentazon)	Alumroot (Heuchera sp.)	Field In-Ground	Simmons	SC	2005	Over the top	No injury
25193	Basagran Herbicide (Bentazon)	Lily, Plantain (Hosta fortunei) August Moon	Field Container	Senesac	NY	1990	Over the top	No visible injury, but there was a reduction in vigor and fresh weight.
25193	Basagran Herbicide (Bentazon)	Lily, Plantain (Hosta fortunei) Brigham Blue	Field Container	Senesac	NY	1990	Over the top	No visible injury, but there was a reduction in vigor and fresh weight.
25193	Basagran Herbicide (Bentazon)	Lily, Plantain (Hosta fortunei) 'White Beauty'	Field Container	Senesac	NY	1990	Over the top	No visible injury, but there was a reduction in vigor and fresh weight.
00048	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) I. crenata 'Helleri'	Field Container	Beste (ARS)	MD	1990	Broadcast	Significant foliar injury. Poor control of prostrate spurge, woodsorrel and bittercress
00093	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) I. crenata 'Helleri'	Field In-Ground	Beste (ARS)	MD	1990	Broadcast	No significant visible phytotoxicity. Excellent control of yellow nutsedge

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
00048	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) crenata 'Helleri'	Field Container	Beste (ARS)	MD	1991	Broadcast	Poor control of Pennsylvania bittercress, yellow woodsorrel, and prostrate spurge
00048	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) compacta	Field Container	Derr	VA	1990	Over the top	Slight injury.
00048	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) I. cornuta bufordii	Field Container	Glaze	GA	1990	Broadcast	Slight differences in plant growth, but plants were marketable.
00048	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) I. crenata 'Convexa'	Field Container	Linderman	OR	1990	Over the top	No injury
00048	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) I. cornuta 'Dwarf Buford'	Field Container	Talbert	AR	1990	Over the top	Single application caused no damage; second application caused transient discoloration
00093	Basagran Herbicide (Bentazon)	Holly (Ilex sp.) I. cornuta 'Dwarf Buford'	Field In-Ground	Talbert	AR	1990	Over the top	Single application did no damage; second application caused transient phytotoxicity
10833	Basagran Herbicide (Bentazon)	Impatiens; Touch-me-not (Impatiens sp.) 'Little Gem'	Field Container	Linderman	OR	1991	Over the top	Substantial reduction in bloom production and growth
10833	Basagran Herbicide (Bentazon)	Impatiens; Touch-me-not (Impatiens sp.) I. wallerana 'Southeast Salmon Blush'	Field Container	Norcini	FL	1993	Over the top	In both newly transplanted and established plants, significant injury occurred with both 1 and 2 lb ai per acre
10833	Basagran Herbicide (Bentazon)	Impatiens; Touch-me-not (Impatiens sp.)	Field Container	Schreiber	OH	1991	Over the top	No injury.
10819	Basagran Herbicide (Bentazon)	Impatiens; Touch-me-not (Impatiens sp.) 'Accent Carmine'	Field In-Ground	Senesac	NY	1991		Moderate to significant phytotoxicity increasing with rate
10829	Basagran Herbicide (Bentazon)	Jasmine (Jasminum sp.)	Field Container	Fraelich	GA	1999	Broadcast	No observable injury.
00126	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.)	Field In-Ground	Ahrens	CT	1977	Over the top	Significant injury increasing with rate
00126	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.)	Field In-Ground	Ahrens	CT	1978	Over the top	Significant injury increasing with rate
00125	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) Andorra	Field Container	Derr	VA	1990	Over the top	Severe injury at 1 lb ai per acre.
00125	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) J. horizontalis 'Plumosa'	Field Container	Fretz	OH	1977	Over the top	Excessive damage increasing with rate (0.75, 1.5, 3, and 6 lb ai per acre)
00125	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) J. horizontalis moench 'plumosa'	Field Container	Glaze	GA	1990	Over the top	Uniform slight injury across rates.
00125	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) J. horizontalis 'Bar Harbor'	Field Container	Linderman	OR	1990	Over the top	Mortality seen in two applications of 1lb ai per acre. Some damage in later ratings with single application
00125	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) J. horizontalis 'Bar Harbor'	Field Container	Norcini	FL	1991	Over the top	Some mortality at 1 and 2 lb ai per acre.
00125	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) J. conferta 'Shore'	Field Container	Talbert	AR	1990	Ground	No injury with single or two applications
00126	Basagran Herbicide (Bentazon)	Juniper (Juniperus sp.) J. chinensis 'Hetzi'	Field In-Ground	Williams	IL	1977	Directed	No injury noted; acceptable nutsedge control
20653	Basagran Herbicide (Bentazon)	Poker Plant (Kniphofia sp.) Flamenco	Field In-Ground	Boydston	WA	2004	Over the top	Treated plants not saleable

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05560	Basagran Herbicide (Bentazon)	Golden-Rain Tree (<i>Koelreuteria bipinnata</i>)	Field In-Ground	Linderman	OR	1994	Over the top	No injury
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>) 'Rubra'	Field Container	Beste (ARS)	MD	1990	Over the top	Significant growth reduction and foliar injury up to 2 months after treatment. No control of bittercress, carpetweed, prostrate spurge, groundsel
05559	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>) 'Natchez'	Field In-Ground	Derr	VA	1994	Over the top	Some injury but plants recovered Excellent control of yellow nutsedge
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>)	Field Container	Glaze	GA	1990	Broadcast	Generally tolerant. Ineffective control of mares tail, cudweed, brassica species, annual grass, and ragweed.
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>)	Field Container	Linderman	OR	1990	Over the top	First application resulted in no injury; second application caused light necrosis in center of leaves.
05559	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>)	Field In-Ground	Linderman	OR	1994	Over the top	No significant injury
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>) 'Centennial Spirit'	Field Container	Talbert	AR	1990	Ground	Transient yellowing
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>) 'Pecos'	Field Container	Talbert	AR	1990	Ground	Transient yellowing
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>) 'Tuscarora'	Field Container	Talbert	AR	1990	Ground	Transient yellowing
05378	Basagran Herbicide (Bentazon)	Crape Myrtle (<i>Lagerstroemia indica</i>) 'Tuskegee'	Field Container	Talbert	AR	1990	Ground	Transient yellowing
20660	Basagran Herbicide (Bentazon)	Lavender (<i>Lavandula</i> sp.) Provence	Field In-Ground	Boydston	WA	2004	Over the top	No injury at 1 and 2 lb ai per acre; minor injury at 4 lb ai per acre; plants saleable
00558	Basagran Herbicide (Bentazon)	Privet (<i>Ligustrum</i> sp.) L. x <i>ibolium</i>	Field In-Ground	Buriff	OH	1995	Directed	No injury.
02466	Basagran Herbicide (Bentazon)	Privet (<i>Ligustrum</i> sp.) L. <i>obtusifolium</i> 'Regelianum'	Field Container	Fretz	OH	1977	Over the top	Excessive damage increasing with rate (0.75, 1.5, 3, and 6 lb ai per acre)
10844	Basagran Herbicide (Bentazon)	Privet (<i>Ligustrum</i> sp.) L. <i>sinense</i>	Field Container	Glaze	GA	1992	Broadcast	No injury. Two applications did not control cudweed nor brassica species.
10844	Basagran Herbicide (Bentazon)	Privet (<i>Ligustrum</i> sp.) L. <i>amurense</i>	Field Container	Schreiber	OH	1991	Over the top	Slight injury at 1 and 2 lb ai per acre.
10831	Basagran Herbicide (Bentazon)	Lilyturf (<i>Liriope</i> sp.) L. <i>muscaria</i> <i>variegata</i>	Field Container	Glaze	GA	1992	Broadcast	No visible injury. Poor control of cudweed and brassica species.
10831	Basagran Herbicide (Bentazon)	Lilyturf (<i>Liriope</i> sp.) L. <i>muscaria</i> <i>variegata</i>	Field Container	Glaze	GA	1993	Broadcast	No significant injury. Trifolium control was poor and brassica control increased with number of applications.
26143	Basagran Herbicide (Bentazon)	Lilyturf (<i>Liriope</i> sp.) L. <i>muscaria</i> 'Evergreen Giant'	Greenhouse	Norcini	FL	1991	Over the top	Minimal chlorosis with both younger and older plants; younger plants were more tolerant.
12304	Basagran Herbicide (Bentazon)	Apple (<i>Malus</i> sp.) <i>crataegus</i>	Field Container	Fraelich	GA	1997	Broadcast	Slight phytotoxicity after first application; no phytotoxicity after second.

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20641	Basagran Herbicide (Bentazon)	Bee Balm, Scarlet (Monarda didyma) Raspberry Wine	Field In-Ground	Boydston	WA	2004	Over the top	Slight injury
26146	Basagran Herbicide (Bentazon)	Bee Balm, Scarlet (Monarda didyma)	Field Container	Williams	IL	2003		Minimal injury increasing with rate (1, 2, and 4 lb ai per acre).
20641	Basagran Herbicide (Bentazon)	Bee Balm, Scarlet (Monarda didyma)	Field In-Ground	Williams	IL	2003	Over the top	Very slight injury at 1 and 2, slight to moderate at 4 lb ai per acre.
10841	Basagran Herbicide (Bentazon)	Wax Myrtle (Myrica cerifera)	Field Container	Fraelich	GA	1997	Broadcast	Slight to moderate phytotoxicity increasing with rate, but all plants were marketable.
10841	Basagran Herbicide (Bentazon)	Wax Myrtle (Myrica cerifera)	Field Container	Fraelich	GA	1999	Broadcast	Slight phytotoxicity at all rates, but at end of experiment visible injury only occurred at 4 lb ai per acre.
10841	Basagran Herbicide (Bentazon)	Wax Myrtle (Myrica cerifera)	Field Container	Glaze	GA	1992	Broadcast	No phytotoxicity. Little control of cudweed and brassica species.
10841	Basagran Herbicide (Bentazon)	Wax Myrtle (Myrica cerifera)	Field Container	Glaze	GA	1993	Broadcast	No significant injury. Trifolium control was poor and the brassica control increased with number of applications.
25189	Basagran Herbicide (Bentazon)	Aztec Grass, Lillyturf (Ophiopogon jaburan)	Greenhouse	Norcini	FL	1991	Over the top	Injury (tip chlorosis and necrosis) was rate dependent, exhibited faster on younger plants, but was less severe on younger plants.
10836	Basagran Herbicide (Bentazon)	Petunia (Petunia sp.) 'Ultra White'	Field Container	Linderman	OR	1991	Over the top	No injury at 1 and 2 lb ai per acre.
10836	Basagran Herbicide (Bentazon)	Petunia (Petunia sp.)	Field Container	Schreiber	OH	1991	Over the top	No injury
10836	Basagran Herbicide (Bentazon)	Petunia (Petunia sp.)	Field Container	Schreiber	OH	1992	Over the top	No injury.
10822	Basagran Herbicide (Bentazon)	Petunia (Petunia sp.) 'Madness Plum'	Field In-Ground	Senesac	NY	1991	Over the top	No damage with single application
20633	Basagran Herbicide (Bentazon)	Phlox, Fall (Phlox paniculata) Orange Perfection	Field In-Ground	Boydston	WA	2004	Over the top	Slight, moderate and high injury at 1X, 2X and 4X rates
01591	Basagran Herbicide (Bentazon)	Chokeberry (Photinia sp.) P. x fraseri	Field In-Ground	Derr	VA	1993	Over the top	Bentazon plus crop oil caused severe injury. Good yellow nutsedge control.
10845	Basagran Herbicide (Bentazon)	Chokeberry (Photinia sp.) P. serrulata	Field Container	Glaze	GA	1992	Broadcast	No injury. Fair control of cudweed and brassica species.
01591	Basagran Herbicide (Bentazon)	Chokeberry (Photinia sp.) P. x fraseri	Field In-Ground	Linderman	OR	1994	Over the top	No injury.
02464	Basagran Herbicide (Bentazon)	Pine (Pinus sp.) P. strobus	Field In-Ground	Ahrens	CT	1977		No damage at 1 or 2 lb ai per acre
00227	Basagran Herbicide (Bentazon)	Pine (Pinus sp.) P. strobus	Field Container	Derr	VA	1990	Over the top	Moderate injury increasing with subsequent applications.
00227	Basagran Herbicide (Bentazon)	Pine (Pinus sp.) P. strobus	Field Container	Glaze	GA	1990	Broadcast	Slight phytotoxicity.
00227	Basagran Herbicide (Bentazon)	Pine (Pinus sp.) P. mugo 'Mugo'	Field Container	Linderman	OR	1990		No phyto with single application; two applications at 1 lb ai per acre caused significant damage

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
00227	Basagran Herbicide (Bentazon)	Pine (Pinus sp.) P. strobus	Field Container	Schreiber	OH	1991	Over the top	No injury.
10842	Basagran Herbicide (Bentazon)	Japanese Mock Orange (Pittosporum tobira)	Field Container	Fraelich	GA	1997	Broadcast	Slight injury increasing with rate, but all plants still marketable.
10842	Basagran Herbicide (Bentazon)	Japanese Mock Orange (Pittosporum tobira)	Field Container	Fraelich	GA	1999	Broadcast	Slight phytotoxicity at 1 lb ai per acre, moderate at 4 lb ai per acre.
10842	Basagran Herbicide (Bentazon)	Japanese Mock Orange (Pittosporum tobira)	Field Container	Glaze	GA	1993	Broadcast	No injury. Fair control of cudweed and brassica.
10842	Basagran Herbicide (Bentazon)	Japanese Mock Orange (Pittosporum tobira) 'Compacta Green'	Field Container	Norcini	FL	1991	Over the top	Variable response from slight chlorosis to plant death.
10843	Basagran Herbicide (Bentazon)	Yew Plum Pine (Podocarpus macrophyllus) D. Don	Field Container	Fraelich	GA	1996	Broadcast	Slight injury at 1 and 2 lb ai per acre; moderate at 4 lb ai per acre.
10843	Basagran Herbicide (Bentazon)	Yew Plum Pine (Podocarpus macrophyllus) D. Don	Field Container	Fraelich	GA	1999	Broadcast	Slight phytotoxicity at 2 and 4 lb ai per acre.
10843	Basagran Herbicide (Bentazon)	Yew Plum Pine (Podocarpus macrophyllus)	Field Container	Glaze	GA	1992	Broadcast	No injury. Marginal control of cudweed and brassica.
10843	Basagran Herbicide (Bentazon)	Yew Plum Pine (Podocarpus macrophyllus)	Field Container	Glaze	GA	1993	Broadcast	Minimal injury, but marketability was poor in two of the reps - possibly due to disease. Trifolium control was poor, brassica control increased with number of applications.
07819	Basagran Herbicide (Bentazon)	Firethorn (Pyracantha sp.) 'Lalandei'	Field In-Ground	Buriff	OH	1995	Directed	No significant injury
00224	Basagran Herbicide (Bentazon)	Oak (Quercus sp.) Q. agrifolia	Field Container	Glaze	GA	1992	Broadcast	No injury. Some reduction of weed populations of cudweed, brassica, and black willow.
00224	Basagran Herbicide (Bentazon)	Oak (Quercus sp.) Q. rubra	Field Container	Linderman	OR	1990	Over the top	Single app caused no damage; second app caused moderate damage
00224	Basagran Herbicide (Bentazon)	Oak (Quercus sp.) Q. nigra	Field Container	Schreiber	OH	1990		Some damage with both single and double applications
00224	Basagran Herbicide (Bentazon)	Oak (Quercus sp.) Q. nigra	Field Container	Schreiber	OH	1991	Over the top	Some damage with 1 and 2 lb ai per acre
10838	Basagran Herbicide (Bentazon)	Indian Hawthorn (Raphiolepis indica)	Field Container	Glaze	GA	1993		No injury. Trifolium control was poor and the Brassica control increased with number of applications.
10838	Basagran Herbicide (Bentazon)	Indian Hawthorn (Raphiolepis indica) Alba	Field Container	Norcini	FL	1991	Over the top	No injury in recently transplanted or established plants.
02473	Basagran Herbicide (Bentazon)	Rhododendron (Rhododendron sp.) 'Roseum Elegans'	Field In-Ground	Beste (ARS)	MD	1990	Over the top	Significant foliar injury with single and two applications of 1 lb ai per acre.
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Blaaus Pink'	Field In-Ground	Beste (ARS)	MD	1993	Over the top	No significant injury Effective suppression of weeds
11291	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Hino Crimson'	Field Container	Beste (ARS)	MD	1993	Over the top	Injury made plants unsaleable

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02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Blaaus Pink'	Field In-Ground	Beste (ARS)	MD	1994	Over the top	No phytotoxicity
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Delaware Valley White'	Field In-Ground	Beste (ARS)	MD	1994	Over the top	Transient necrosis, but plants were saleable at end of experiment Excellent control of yellow nutsedge; no control of prostrate spurge and carpetweed
11291	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Delaware Valley White'	Field Container	Beste (ARS)	MD	1994	Over the top	Some injury but plants recovered Some control of yellow woodsorrel but bittercress and spurge not controlled
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Delaware Valley White'	Field In-Ground	Beste (ARS)	MD	1995	Over the top	Slight injury but plants were saleable
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Girard Fuschia	Field In-Ground	Beste (ARS)	MD	1995	Over the top	Slight injury but all plants were saleable Controlled chickweed completely
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Hino Crimson'	Field In-Ground	Beste (ARS)	MD	1995	Over the top	Bentazon plus crop oil caused noticeable but transient phytotoxicity
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Hino Crimson'	Field In-Ground	Beste (ARS)	MD	1995	Over the top	Some injury at the 4 lb ai per acre rate but all plants were saleable Effective control of yellow nutsedge
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Pleasant White'	Field In-Ground	Beste (ARS)	MD	1995	Over the top	Some injury but plants were saleable Excellent chickweed control
11291	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Girard Rose'	Field Container	Buriff	OH	1995	Over the top	Some injury at the 2.0 and 4.0 lb ai per acre rate. Plants recovered
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. X 'Hershey Red'	Field In-Ground	Derr	VA	1993	Over the top	Extensive injury at both rates Excellent yellow nutsedge control
02473	Basagran Herbicide (Bentazon)	Rhododendron (Rhododendron sp.) 'Hershey Red'	Field In-Ground	Derr	VA	1993	Over the top	Bentazon plus crop oil caused significant damage. Good control of yellow nutsedge
11291	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. indicum 'Sweet'	Field Container	Fraelich	GA	1996	Broadcast	No injury after second application at 1 and 2 lb ai per acre; moderate at 4 lb ai per acre. Good control of oxalis; no observable impact on carolina geranium, crabgrass, cudweed, pine or spurge.
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) 'Hong Kong'	Field In-Ground	Linderman	OR	1994	Over the top	No injury.
11291	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. macrophylla	Field Container	Linderman	OR	1994	Over the top	No injury
11291	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) Azalea 'Coral Bells'	Field Container	Senesac	NY	1990	Over the top	No visible injury, but reduction in vigor and fresh weight.
02472	Basagran Herbicide (Bentazon)	Azalea (Rhododendron sp.) R. obtusum 'Hino Crimson'	Field In-Ground	Talbert	AR	1990	Over the top	Poor control of yellow nutsedge
25194	Basagran Herbicide (Bentazon)	Rose (Rosa sp.) 'Mediland'	Field Container	Senesac	NY	1990	Over the top	No visible injury, but there was a reduction in vigor and fresh weight.
20658	Basagran Herbicide (Bentazon)	Scarlet Sage (Salvia splendens) Caradonna	Field In-Ground	Boydston	WA	2004	Over the top	Slight injury at 1X, moderate at 2X and 4X rates

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20634	Basagran Herbicide (Bentazon)	Aster, White Heath (Symphyotrichum ericoides) Aster novi-belgii 'Woods Light Blue'	Field In-Ground	Boydston	WA	2004	Over the top	Slight, moderate and high injury at 1X, 2X and 4X rates
10834	Basagran Herbicide (Bentazon)	Marigold (Tagetes sp.) 'Inka Orange'	Field Container	Linderman	OR	1991	Over the top	No injury.
10820	Basagran Herbicide (Bentazon)	Marigold (Tagetes sp.) 'Bolero'	Field In-Ground	Linderman	OR	1994	Over the top	No phytotoxicity.
10834	Basagran Herbicide (Bentazon)	Marigold (Tagetes sp.) T. erecta 'Inca Yellow'	Field Container	Norcini	FL	1993	Over the top	Trial 1 (newly transplanted): moderate to severe necrosis with some mortality. Trial 2 (established plants): some necrosis at 1 and 2 lb ai per acre seven days after first application.
10834	Basagran Herbicide (Bentazon)	Marigold (Tagetes sp.)	Field Container	Schreiber	OH	1991	Over the top	No injury.
10820	Basagran Herbicide (Bentazon)	Marigold (Tagetes sp.) 'Aurora Gold'	Field In-Ground	Senesac	NY	1991	Over the top	Slight injury with single application of 1 lb ai per acre; moderate damage with two consecutive applications of 1 lb ai per acre.
10820	Basagran Herbicide (Bentazon)	Marigold (Tagetes sp.) T. erecta	Field In-Ground	Talbert	AR	1994	Over the top	No injury with one application at 1 and 2 lb ai per acre rate; slight with the 4 lb ai per acre rate. The second application caused slight to moderate injury increasing with rate. Excellent control of smooth pigweed, common purslane, yellow nutsedge, and
10827	Basagran Herbicide (Bentazon)	Bald Cypress (Taxodium distichum)	Field Container	Buriff	OH	1995	Over the top	No significant injury
10813	Basagran Herbicide (Bentazon)	Bald Cypress (Taxodium distichum)	Field In-Ground	Buriff	OH	1996	Till incorporated	No injury
10827	Basagran Herbicide (Bentazon)	Bald Cypress (Taxodium distichum)	Field Container	Glaze	GA	1993	Over the top	No significant injury
10827	Basagran Herbicide (Bentazon)	Bald Cypress (Taxodium distichum)	Field Container	Schreiber	OH	1991	Over the top	Slight to moderate injury.
00986	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. cuspidata	Field In-Ground	Ahrens	CT	1977	Over the top	No damage at 1 or 2 lb ai per acre
00986	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. cuspidata densiformis	Field In-Ground	Ahrens	CT	1977	Over the top	No damage at 1 or 2 lb ai per acre
00986	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. cuspidata	Field In-Ground	Ahrens	CT	1978	Over the top	No damage at 1 or 2 lb ai per acre
00986	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. cuspidata densiformis	Field In-Ground	Ahrens	CT	1978	Over the top	No damage at 1 or 2 lb ai per acre
10666	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. media 'Hicksi'	Field Container	Beste (ARS)	OH	1990	Over the top	No injury.

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10666	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. media 'Hicksi'	Field Container	Beste (ARS)	MD	1991	Over the top	No injury. Good initial control of prostrate spurge, no control of PA bittercress or yellow woodsorrel
10666	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. media 'Densiformis'	Field Container	Beste (ARS)	MD	1993	Over the top	No injury. Good common sowthistle control; no effect on prostrate spurge; necrosis on Eclipta, but no control; perfect sowthistle was controlled with two applications.
10666	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. media 'Hicksi'	Field Container	Glaze	GA	1993	Broadcast	No significant injury. Trifolium control was poor and brassica control increased with number of applications.
10666	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. cuspidata 'Densiformis'	Field Container	Linderman	OR	1991	Over the top	No injury.
10666	Basagran Herbicide (Bentazon)	Yew (Taxus sp.)	Field Container	Schreiber	OH	1991	Over the top	No injury.
00986	Basagran Herbicide (Bentazon)	Yew (Taxus sp.) T. media 'Hatfieldii'	Field In-Ground	Senesac	NY	1990	Over the top	No injury. About 30% control of nutsedge
00986	Basagran Herbicide (Bentazon)	Yew (Taxus sp.)	Field In-Ground	Williams	IL	1977	Directed	No injury noted; acceptable nutsedge control
00549	Basagran Herbicide (Bentazon)	Red Cedar, Arborvitae (Thuja sp.) T. occidentalis	Field In-Ground	Senesac	NY	1990	Over the top	No injury. About 30% control of nutsedge
25190	Basagran Herbicide (Bentazon)	Jasmine, Asian Star (Trachelospermum asiaticum) 'Aslo'	Field Container	Norcini	FL	1991	Over the top	Slight to moderate chlorosis and necrosis increasing with rate.
25190	Basagran Herbicide (Bentazon)	Jasmine, Asian Star (Trachelospermum asiaticum) T. jasminoides	Field Container	Norcini	FL	1993	Over the top	Trial 1 (recently transplanted): slight injury at 1 lb ai per acre and lasting injury at 2 lb ai per acre. Trial 2 (established plants): moderate to lasting injury at 1 lb ai per acre; nearly complete mortality at 2 lb ai per acre.
26132	Basagran Herbicide (Bentazon)	Hemlock, Eastern (Tsuga canadensis)	Field In-Ground	Ahrens	CT	1978	Over the top	Moderate injury with 1 and 2 lb ai per acre
20642	Basagran Herbicide (Bentazon)	Vervain (Verbena sp.) Homestead Purple	Field In-Ground	Boydston	WA	2004	Over the top	Slight injury at 1X, high at 2X and 4X rates
10840	Basagran Herbicide (Bentazon)	Arrowwood (Viburnum sp.) V. odoratissimum	Field Container	Glaze	GA	1993	Broadcast	Minor injury. Trifolium control was poor and brassica control increased with number of applications.
10840	Basagran Herbicide (Bentazon)	Arrowwood (Viburnum sp.) V. opulus	Field Container	Linderman	OR	1991	Over the top	Control plants performed poorly; no conclusions can be reached from this trial
10840	Basagran Herbicide (Bentazon)	Arrowwood (Viburnum sp.) V. carlesi	Field Container	Schreiber	OH	1991	Over the top	Moderate injury with both 1 and 2 lb ai per acre.
00559	Basagran Herbicide (Bentazon)	Weigela (Weigela sp.) W. florida 'Java Red'	Field In-Ground	Buriff	OH	1995	Directed	No injury with directed applications.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
00559	Basagran Herbicide (Bentazon)	Weigela (Weigela sp.) 'Red Prince'	Field In-Ground	Linderman	OR	1994	Over the top	Necrosis at 1, 2, and 4 lb ai per acre. Most susceptible tissue were young leaves. Damage became masked within 3 weeks so that by end of experiment plant were saleable.
13063	Basagran SG (Bentazon)	Ornamental Cabbage/Kale (Brassica oleracea) Kale 'Nagoya Garnish White'	Field Container	Senesac	NY	1993	Over the top	Severe injury and growth reduction at 1, 2 and 4 lb ai per acre.
33422	Basagran T&O Herbicide (Bentazon)	False Goat's Beard (Astilbe sp.) Astilbe x arendsii 'Cappuccino'	Field Container	Koivunen	CA	2020	Over the top	Severe injury with 32, 64 and 128 fl oz per acre + COC applied twice.
33422	Basagran T&O Herbicide (Bentazon)	False Goat's Beard (Astilbe sp.) 'Visions'	Field Container	Reding	OH	2019	Over the top	Severe with 32, 64 and 128 fl oz per acre + MSO applied twice in conjunction with MSO; treated plants not marketable.
33422	Basagran T&O Herbicide (Bentazon)	False Goat's Beard (Astilbe sp.) Astilbe x arendsii 'Erica'	Field Container	Senesac	NY	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre applied twice in conjunction with COC.
33428	Basagran T&O Herbicide (Bentazon)	Elephant's-Ear, Angel-Wings (Caladium sp.) 'Apple Blossom'	Field Container	Derr	VA	2019	Over the top	Minor to moderate initial injury, with full recovery, with 32, 64 and 128 fl per acre + MSO applied twice.
33428	Basagran T&O Herbicide (Bentazon)	Elephant's-Ear, Angel-Wings (Caladium sp.)	Field Container	Reding	OH	2021	Over the top	No injury when applied at 32, 64, and 128 fl oz/acre rates.
33415	Basagran T&O Herbicide (Bentazon)	Feather Reed Grass (Calamagrostis acutiflora)	Field Container	Reding	OH	2021	Over the top	Minor to moderate phytotoxicity, increasing with rate, when applied at 32, 64, and 128 fl oz/acre rates.
33415	Basagran T&O Herbicide (Bentazon)	Feather Reed Grass (Calamagrostis acutiflora) 'Avalanche'	Field Container	Witcher	TN	2021	Over the top	No injury or growth reduction when applied 2x biweekly at 32, 64 and 128 fl oz per acre rates.
33433	Basagran T&O Herbicide (Bentazon)	Canna Lily Hybrids (Canna x generalis) 'Tropical Rose'	Field Container	Doohan	OH	2020	Over the top	Severe injury with 32, 64 and 128 fl oz per acre applied twice.
33413	Basagran T&O Herbicide (Bentazon)	Indian Woodoats (Chasmanthium latifolium)	Field Container	Reding	OH	2021	Over the top	Minor to severe phytotoxicity, increasing with rate, when applied at 32, 64, and 128 fl oz/acre rates.
33413	Basagran T&O Herbicide (Bentazon)	Indian Woodoats (Chasmanthium latifolium)	Field Container	Witcher	TN	2021	Over the top	No injury or growth reduction when applied 2x biweekly at 32, 64 and 128 fl oz per acre rates.
33412	Basagran T&O Herbicide (Bentazon)	Pampas Grass, Uruguayan (Cortaderia selloana) 'Rosea'	Field Container	Senesac	NY	2018	Over the top	Minor injury with 32 and 64, moderate with 128 fl oz per acre + COC applied twice; no stunting.
33412	Basagran T&O Herbicide (Bentazon)	Pampas Grass, Uruguayan (Cortaderia selloana)	Field Container	Witcher	TN	2021	Over the top	No injury or growth reduction when applied 2x biweekly at 32, 64 and 128 fl oz per acre rates.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
33425	Basagran T&O Herbicide (Bentazon)	Maiden Pink (<i>Dianthus deltoides</i>) 'Zing Rose'	Field Container	Reding	OH	2019	Over the top	No and minor injury, no growth reduction with 32 and 64, death with 128 fl oz per acre applied twice in conjunction with MSO.
33425	Basagran T&O Herbicide (Bentazon)	Maiden Pink (<i>Dianthus deltoides</i>) 'Flashing Light'	Field Container	Senesac	NY	2019	Over the top	Moderate injury with 32, severe with 64 and 128 fl oz per acre applied twice in conjunction with COC.
33424	Basagran T&O Herbicide (Bentazon)	Eastern Purple Coneflower (<i>Echinacea purpurea</i>) 'Magnus'	Field Container	Aulakh	CT	2018	Over the top	Minor to severe injury and growth reduction with 32, 64 and 128 fl oz per acre applied twice.
33424	Basagran T&O Herbicide (Bentazon)	Eastern Purple Coneflower (<i>Echinacea purpurea</i>) 'Magnus Superior'	Field Container	Derr	VA	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre + MSO applied twice.
33424	Basagran T&O Herbicide (Bentazon)	Eastern Purple Coneflower (<i>Echinacea purpurea</i>) 'Magnus'	Field Container	Reding	OH	2019	Over the top	N/A. Test for crop not conducted because of severe powdery mildew infection.
33424	Basagran T&O Herbicide (Bentazon)	Eastern Purple Coneflower (<i>Echinacea purpurea</i>)	Field Container	Seefeldt	WA	2020	Over the top	Severe damage at all rates(1,2 and 4 lb ai per acre); all plants at all rates dead 2 WAT.
33420	Basagran T&O Herbicide (Bentazon)	Field Fescue (<i>Festuca glauca</i>)	Field Container	Cochran (IA)	IA	2018	Over the top	No significant injury with 32 and 64, moderate with 128 oz per acre applied twice; moderate growth reduction with 2X and 4X.
33420	Basagran T&O Herbicide (Bentazon)	Field Fescue (<i>Festuca glauca</i>)	Field Container	Koivunen	CA	2020	Over the top	No significant injury and growth reduction with 32, 64 and 128 fl oz per acre + COC applied twice.
33420	Basagran T&O Herbicide (Bentazon)	Field Fescue (<i>Festuca glauca</i>) 'Elijah Blue'	Field Container	Senesac	NY	2019	Over the top	No injury or stunting with 32, 64 and 128 fl oz per acre applied twice.
33429	Basagran T&O Herbicide (Bentazon)	Gladiolus (<i>Gladiolus</i> sp.)	Field Container	Mathers	OH	2018	Over the top	No injury after 1st application with 32, 64 and 128 fl oz per acre plus COC; moderate to severe injury after 2nd applic.
33429	Basagran T&O Herbicide (Bentazon)	Gladiolus (<i>Gladiolus</i> sp.)	Field Container	Miller	WA	2018	Over the top	No injury after 1st application, severe injury after 2nd application with 1, 2 and 4 qt per acre.
33429	Basagran T&O Herbicide (Bentazon)	Gladiolus (<i>Gladiolus</i> sp.) G. primulinus 'Mirella'	Field Container	Senesac	NY	2020	Over the top	Moderate to severe injury with 1, 2 and 4 lb ai per acre applied twice biweekly.
33426	Basagran T&O Herbicide (Bentazon)	Shoebblackplant; Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) Hibiscus sp. 'Chatty Kathy'	Field Container	Doohan	OH	2020	Over the top	Minor to high injury and growth reduction increasing with rates (32, 64 and 128 fl oz per acre) applied twice.
34358	Basagran T&O Herbicide (Bentazon)	Plantain Lily (<i>Hosta</i> sp.) 'So Sweet'	Field Container	Derr	VA	2019	Over the top	Minor to moderate injury, with good recovery, with 32, 64 and 128 fl oz + MSO per acre applied twice.Excellent control of yellow nutsedge.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
25318	Basagran T&O Herbicide (Bentazon)	Hydrangea (Hydrangea sp.)	Field Container	Derr	VA	2005	Over the top	Very low injury at 1 lb ai per acre + X-77 at 0.25%
25318	Basagran T&O Herbicide (Bentazon)	Hydrangea (Hydrangea sp.) H. macrophylla 'Nikko Blue'	Field Container	Fraelich	GA	2020	Over the top	Moderate injury and stunting with 32 and 64 fl oz, severe with 128 fl oz per acre applied twice.
25318	Basagran T&O Herbicide (Bentazon)	Hydrangea (Hydrangea sp.) H. macrophylla	Field Container	Nackley	OR	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre applied twice.
25318	Basagran T&O Herbicide (Bentazon)	Hydrangea (Hydrangea sp.) H. microphylla 'Early Blue'	Field Container	Senesac	NY	2020	Over the top	Severe injury with 1, 2 and 4 lb ai per acre applied twice biweekly.
25318	Basagran T&O Herbicide (Bentazon)	Hydrangea (Hydrangea sp.) H. macrophylla	Field Container	Uber	CA	2018	Over the top	Severe injury with 1, 2 and 4 lb ai per acre + MSO applied twice.
34362	Basagran T&O Herbicide (Bentazon)	Stonecrop, October Daphne (Hylotelephium sieboldii)	Field Container	Klett	CO	2020	Over the top	Moderate to severe injury increasing with rates (32, 64 and 128 fl oz per 100 gal) after 1st application.
33913	Basagran T&O Herbicide (Bentazon)	Witch's Moneybags (Hylotelephium telephium)	Field Container	Derr	VA	2018	Over the top	Moderate to severe crop injury (shoot weight reduction) increasing with rates (32, 64 and 128 fl oz per acre + MSO) applied twice.
33913	Basagran T&O Herbicide (Bentazon)	Witch's Moneybags (Hylotelephium telephium) 'Sunsparkler Jade Tuffet'	Field Container	Derr	VA	2019	Over the top	Severe injury with 32, 64, and 128 fl oz per acre + MSO applied twice.
33432	Basagran T&O Herbicide (Bentazon)	Lily (Lilium sp.) 'Litouwen'	Field Container	Miller	WA	2018	Over the top	No injury after 1st application, severe injury after 2nd application with 1, 2 and 4 qt per acre.
33432	Basagran T&O Herbicide (Bentazon)	Lily (Lilium sp.) 'Golden Splendour'	Field Container	Reding	OH	2019	Over the top	No to minor injury with 32, 64 and 128 fl oz per acre + MSO applied twice; no growth reduction; treated plants marketable.
33432	Basagran T&O Herbicide (Bentazon)	Lily (Lilium sp.) L. longiflorum	Field Container	Senesac	NY	2020	Over the top	Moderate injury with 1, 2 and 4 lb ai per acre applied twice biweekly.
33418	Basagran T&O Herbicide (Bentazon)	Silvergrass, Japanese (Miscanthus sinensis) 'Fermer Osten'	Field Container	Senesac	NY	2020	Over the top	Minor to moderate injury with 1, 2 and 4 lb ai per acre applied twice biweekly.
33416	Basagran T&O Herbicide (Bentazon)	Muhly, Hairyaw (Muhlenbergia capillaris) 'bamboo muhly'	Field Container	Reding	OH	2021	Over the top	Minor to moderate phytotoxicity, increasing with rate, when applied at 32, 64, and 128 fl oz/acre rates.
33430	Basagran T&O Herbicide (Bentazon)	Daffodil (Narcissus sp.) 'Ferris Wheel'	Field Container	Derr	VA	2019	Over the top	Minor leaf injury with 32, 64 and 128 fl oz per acre + MSO applied twice. Minor to moderate injury observed to flowers increasing with rate.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
33430	Basagran T&O Herbicide (Bentazon)	Daffodil (Narcissus sp.) 'Tete-a-Tete'	Field Container	Doohan	OH	2020	Over the top	No injury with 32, 64 and 128 fl oz per acre + COC applied twice.
33430	Basagran T&O Herbicide (Bentazon)	Daffodil (Narcissus sp.) 'Flower Carpet'	Field Container	Miller	WA	2018	Over the top	No injury or growth reduction with 1, 2 and 4 lb ai per acre applied once; second application not made due to severe winter injury.
33414	Basagran T&O Herbicide (Bentazon)	Mondo Grass; Lilyturf; Ker-Gawl (Ophiopogon sp.) O. planiscapus 'Nigrescens'	Field Container	Senesac	NY	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre applied twice.
33417	Basagran T&O Herbicide (Bentazon)	Switch Grass (Panicum virgatum)	Field Container	Senesac	NY	2019	Over the top	Minor injury and no stunting with 32 and 64, moderate with 128 fl oz per acre applied twice.
33417	Basagran T&O Herbicide (Bentazon)	Switch Grass (Panicum virgatum) 'Cloud Nine'	Field Container	Witcher	TN	2021	Over the top	No injury or growth reduction when applied 2x biweekly at 32, 64 and 128 fl oz per acre rates.
33419	Basagran T&O Herbicide (Bentazon)	Crimson Fountain Grass (Pennisetum setaceum) 'Rubrum'	Field Container	Neal	NC	2020	Over the top	Minor to moderate injury with 1, 2 and 4 lb per acre + COC after 1st application, worsening after 2nd, then slowly decreasing over time. By end of trial, 1X comparable to untreated.
33419	Basagran T&O Herbicide (Bentazon)	Crimson Fountain Grass (Pennisetum setaceum) 'Fireworks'	Field Container	Senesac	NY	2019	Over the top	Minor to severe injury increasing with rates (32, 64 and 128 fl oz per acre) applied twice.
33423	Basagran T&O Herbicide (Bentazon)	Black-Eyed Susan (Rudbeckia hirta) 'Speedy Smiley'	Field Container	Derr	VA	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre + MSO applied twice.
33423	Basagran T&O Herbicide (Bentazon)	Black-Eyed Susan (Rudbeckia hirta) 'Little Goldstar'	Field Container	Koivunen	CA	2020	Over the top	Severe injury with 32, 64 and 128 fl oz per acre + COC applied twice.
33423	Basagran T&O Herbicide (Bentazon)	Black-Eyed Susan (Rudbeckia hirta) 'Prairie Sun'	Field Container	Reding	OH	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre + MSO after first application.
33421	Basagran T&O Herbicide (Bentazon)	Little Bluestem (Schizachyrium scoparium)	Field Container	Reding	OH	2021	Over the top	Minor to severe phytotoxicity, increasing with rate, when applied at 32, 64, and 128 fl oz/acre rates.
33440	Basagran T&O Herbicide (Bentazon)	Stonecrop, Moss (Sedum acre)	Field Container	Klett	CO	2020	Over the top	Moderate to severe injury increasing with rates (32, 64 and 128 fl oz per 100 gal) after 1st application.
33440	Basagran T&O Herbicide (Bentazon)	Stonecrop, Moss (Sedum acre)	Field Container	Marble	FL	2019	Over the top	Minor to moderate injury increasing with rates (32, 64 and 128 fl oz per acre) applied twice; severe growth reduction at 4X.
33440	Basagran T&O Herbicide (Bentazon)	Stonecrop, Moss (Sedum acre)	Field Container	Senesac	NY	2018	Over the top	Moderate injury with 32, 64 and 128 fl oz per acre + COC applied twice; no stunting.

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
33409	Basagran T&O Herbicide (Bentazon)	Stonecrop, White (Sedum album) 'Coral Carpet'	Field Container	Neal	NC	2019	Over the top	Severe injury and growth reduction with 32, 64, and 128 fl oz per acre + COC at 1 qt per acre applied twice.
33409	Basagran T&O Herbicide (Bentazon)	Stonecrop, White (Sedum album) S. acre	Field Container	Reding	OH	2019	Over the top	Severe injury with 32, 64 and 128 fl oz per acre + MSO applied twice; treated plants not marketable.
33410	Basagran T&O Herbicide (Bentazon)	Stonecrop, Kamchatka (Sedum kamschaticus) 'Variegatum'	Field Container	Neal	NC	2019	Over the top	Severe injury and growth reduction with 32, 64, and 128 fl oz per acre + COC at 1 qt per acre applied twice.
33410	Basagran T&O Herbicide (Bentazon)	Stonecrop, Kamchatka (Sedum kamschaticus)	Field Container	Seefeldt	WA	2020	Over the top	Severe damage at all rates(1,2 and 4 lb ai per acre)
33410	Basagran T&O Herbicide (Bentazon)	Stonecrop, Kamchatka (Sedum kamschaticus) 'Ellacombeanum'	Field Container	Senesac	NY	2018	Over the top	Minor injury with 32 and 64, moderate with 128 fl oz per acre + COC applied twice; no stunting.
33408	Basagran T&O Herbicide (Bentazon)	Stonecrop, Jenny's (Sedum rupestre)	Field Container	Aulakh	CT	2019	Over the top	No injury with 32, 64 and 128 fl oz per acre after 1st, moderate to severe after 2nd application.
33408	Basagran T&O Herbicide (Bentazon)	Stonecrop, Jenny's (Sedum rupestre) 'Blue Spruce'	Field Container	Koivunen	CA	2020	Over the top	Moderate to severe injury with 32, 64 and 128 fl oz per acre + COC applied twice.
33408	Basagran T&O Herbicide (Bentazon)	Stonecrop, Jenny's (Sedum rupestre) 'Angelina'	Field Container	Neal	NC	2019	Over the top	Severe injury and growth reduction with 32, 64, and 128 fl oz per acre + COC at 1 qt per acre applied twice.
33408	Basagran T&O Herbicide (Bentazon)	Stonecrop, Jenny's (Sedum rupestre) 'Angelina'	Field Container	Senesac	NY	2018	Over the top	Moderate to severe injury increasing with rates (32, 64 and 128 fl oz per acre) applied twice + COC; stunting wit 4X.
33411	Basagran T&O Herbicide (Bentazon)	Stonecrop, Tasteless (Sedum sexangulare)	Field Container	Neal	NC	2019	Over the top	Severe injury and growth reduction with 32, 64, and 128 fl oz per acre + COC at 1 qt per acre applied twice.
33407	Basagran T&O Herbicide (Bentazon)	Stonecrop, Two-Row/Caucasian (Sedum spurium) Sedum spurium 'Tricolor'	Field Container	Boydston	WA	2004	Over the top	No injury at 1X and 2X rates, slight at 4X
33407	Basagran T&O Herbicide (Bentazon)	Stonecrop, Two-Row/Caucasian (Sedum spurium) 'Coral Carpet'	Field Container	Doohan	OH	2019	Over the top	Minor to severe injury increasing with rates (32, 64 and 128 fl oz per acre) applied twice with COC.
33407	Basagran T&O Herbicide (Bentazon)	Stonecrop, Two-Row/Caucasian (Sedum spurium) 'Dragon's Blood'	Field Container	Neal	NC	2019	Over the top	Severe injury and growth reduction with 32, 64, and 128 fl oz per acre + COC at 1 qt per acre applied twice.
33407	Basagran T&O Herbicide (Bentazon)	Stonecrop, Two-Row/Caucasian (Sedum spurium) 'Summer Glory'	Field Container	Seefeldt	WA	2020	Over the top	Severe damage at all rates(1,2 and 4 lb ai per acre)

PR#	Product	Crop	Production Site	Researcher	State	Year	Application Type	Results
33407	Basagran T&O Herbicide (Bentazon)	Stonecrop, Two-Row/Caucasian (Sedum spurium) 'John Creech'	Field Container	Senesac	NY	2019	Over the top	Minor injury and no stunting with 32, 64 and 128 fl oz per acre applied twice.
33427	Basagran T&O Herbicide (Bentazon)	Bridal-Wreath (Spiraea sp.)	Field Container	Derr	VA	2020	Over the top	Minor initial injury with good recovery with 32, 64 and 128 fl oz per acre applied twice.
33427	Basagran T&O Herbicide (Bentazon)	Bridal-Wreath (Spiraea sp.) S. vanhouttei 'White Spirea'	Field Container	Koivunen	CA	2020	Over the top	No significant injury with 32 and 64, moderate at 128 fl oz per acre + COC applied twice;no significant growth reduction.
33427	Basagran T&O Herbicide (Bentazon)	Bridal-Wreath (Spiraea sp.) 'Double Play Doozie'	Field Container	Reding	OH	2019	Over the top	No significant injury or growth reduction with 32, moderate and severe with 64 and 128 fl oz per acre + MSO applied twice; treated plants not marketable.
33431	Basagran T&O Herbicide (Bentazon)	Tulip (Tulipa sp.) 'Negrita'	Field Container	Miller	WA	2018	Over the top	No injury with 1, 2 and 4 qt per acre applied twice.
33431	Basagran T&O Herbicide (Bentazon)	Tulip (Tulipa sp.) 'Apricot Beauty'	Field Container	Moretti	OR	2021	Over the top	No injury with 32 fl oz per acre applied twice; minor and moderate initial injury with 64 and 128 fl oz per acre with no new injury after 2nd application.
33431	Basagran T&O Herbicide (Bentazon)	Tulip (Tulipa sp.)	Field Container	Senesac	NY	2020	Over the top	Minor to moderate injury with 1, 2 and 4 lb ai per acre applied twice biweekly.

Label Suggestions

In this report, seventeen species and genera exhibited no or minimal injury after over the top treatments of Basangran at 1.0, 2.0, and 4.0 lb ai per acre rates. Four additional species and genera experienced the no or minimal injury at 1X rate, but were injured at the 2X and 4X rates. It is recommended the label indicates those crops should only receive one application. Thirteen of the twenty-two listed crops are already in the product label. If tested crops will be listed on the label, these can be included in a future label:

*Antirrhinum majus*¹ (Field Container)
Buxus sp.
Caryopteris sp. (See Fretz)
Cercis canadensis
Cotoneaster sp.^{1*}
Cynodon dactylon
*Euonymus fortunei*¹
*Euonymus japonicus*¹
Festuca glauca
Hedera helix L. ssp. *Helix*
Hemerocallis sp.¹ (See Norcini)

*Hosta fortunei*¹
Ilex sp.¹
Jasminum sp.¹
Liriope sp.¹
Petunia sp.
Pinus sp.^{1*}
*Raphiolepis indica*¹
Tagetes sp.^{1*}
*Taxodium distichum*¹
Taxus spp.
Viola sp.*

Recommend one application*
Already Registered¹

In this report, thirty-six species and genera exhibited moderate to severe injury after a single over the top application of Basangran at 1.0, 2.0, and 4.0 lb ai per acre rates. It is recommended that the following should be listed in a section of the label cautioning against use with over the top applications:

Astilbe x arendsii
Astilbe sp.
Betula pendula
Betula platyphylla
*Brassica oleracea*¹
Canna x generalis
Carissa macrocarpa
Chasmanthium latifolium
Cornus florida
Dianthus deltoides
Dicentra sp.
Echinacea purpurea
*Euonymus alatus*¹
Forsythia sp.
Gazania linearis

Gladiolus sp.
Hydrangea sp.
Hylotelephium telephium
Impatiens sp.¹
Juniperus sp.
Kniphofia sp.
Ophiopogon planiscapus
Pennisetum setaceum
Phlox sp.
Rudbeckia hirta
Schizachyrium scoparium
Sedum album
Sedum acre
Sedum kamtschaticus
Sedum rupestre

Sedum sexamgulare
Sedum spurium
Trachelospermum asiaticum

Weigela sp.
Zinnia sp.

Figure 1. Excerpt from Basagran T/O Label

Table 3. Ornamental Species for Over-the-top Application	
Common Name	Scientific Name
Alumroot	<i>Heuchera</i> spp.
Apple (nonbearing)	<i>Malus</i> spp.
Arborvitae*	<i>Thuja occidentalis</i>
Barberry, Japanese	<i>Berberis thunbergii</i>
Bugle, common	<i>Ajuga</i> spp.
Butterfly bush	<i>Buddleia davidii</i>
Cabbage ornamental	<i>Brassica</i> spp.
Cape jasmine	<i>Gardenia</i> spp.
Chokeberry	<i>Photinia</i> spp.
Coral bells	<i>Heuchera</i> spp.
Cotoneaster	<i>Cotoneaster</i> spp.
Crabapple (nonbearing)	<i>Malus</i> spp.
Crape myrtle	<i>Lagerstroemia indica</i>
Cypress, bald	<i>Taxodium distichum</i>
Daylily	<i>Hemerocallis</i> spp.
Dusty miller	<i>Centaurea cineraria</i>
Euonymus	<i>Euonymus</i> spp.
Gardenia, common	<i>Gardenia</i> spp.
Golden-rain tree	<i>Koelreuteria bipinnata</i>
Hawthorn, Indian	<i>Rhaphiolepis indica</i>
Holly	<i>Ilex</i> spp.
Holly, Chinese	<i>Ilex cornuta</i>
Holly, dwarf Chinese	<i>Ilex cornuta</i>
Holly, Japanese	<i>Ilex crenata</i>
Jasmine	<i>Jasminum</i> spp.
Lily, plantain	<i>Hosta fortunei</i>
Lilyturf	<i>Liriope</i> spp.
Lilyturf, big blue	<i>Liriope muscari</i>
Liriope, creeping	<i>Liriope spicata</i>
Marigold	<i>Tagetes</i> spp.

Table 3. Ornamental Species for Over-the-top Application (continued)	
Common Name	Scientific Name
Myrtle, wax	<i>Myrica cerifera</i>
Oak, red*	<i>Quercus rubra</i>
Pachysandra	<i>Pachysandra terminalis</i>
Petunia	<i>Petunia hybrida</i>
Photinia	<i>Photinia</i> spp.
Pine, Mugo	<i>Pinus mugo</i>
Pine, white	<i>Pinus strobus</i>
Pittosporum, Japanese	<i>Pittosporum tobira</i>
Snapdragon	<i>Antirrhinum majus</i>
* Make no more than one application per crop per growing season. Some species within a genera may vary in degree of tolerance. Before application across a large number of plants within the same species, test Basagran® T&O herbicide on a small number of plants of that species and observe for 2 weeks. DO NOT apply crop oil with application of Basagran T&O over the top to ornamentals or injury may occur.	

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