**HERBICIDE UPDATE:**
Discontinued products: Rowel.

Restricted Use Products (RUP):
Dicamba formulations of Engenia, FeXapan, and XtendiMax.

Chemical company purchase/mergers:
Purchase: Bayer will buy Monsanto in 2018.
Merger: Dow + DuPont
DuPont small grain and sugarbeet sulfonylurea herbicides from DuPont will be marketed by FMC:
Affinity BroadSpec, Affinity TankMix, Ally, Express, Harmony, Panofflex, Sentrallas, UpBeet, and Travallas.

The following herbicides will be retained by Dow/DuPont:
- Alluvec = rimsulfuron + Harmony 16.7 + 16.7% - corn EPP/PRE
- Basis Blend = rimsulfuron+Harmony 20%+10% - corn PRE/POST
- LeadOff = rimsulfuron + Harmony 16.7 + 16.7% - corn EPP/PRE
- Resolve Q = rimsulfuron+Harmony 18.4%+4% - corn PRE/POST
- Require Q = rimsulfuron + dicamba 6.25%+53% - corn POST
- Realm Q = rimsulfuron + Callisto 7.5% + 31.25% - corn POST
- Revulim Q = Accent + Callisto 14.4%+36.8% - corn POST
- Afforia = Harmony + Express + Valor. EPP/PRE in soybean.

New products/formulations:
- Engenia (BASF) = dicamba-BAPMA salt 5SL
- Enlist Duo (Dow) = 2,4-D-choline salt + glyphosate-dma salt
- Enlist One (Dow) = 2,4-D-choline salt 3.8SL
- Everest 3.0 (Arysta) = flucarbazone 1.75OD
- FeXapan (DuPont) = XtendiMax = dicamba-dga+VaporGrip 2.9SL
- Harness Max (Monsanto) = acetochlor + mesotrione
- OpenSky (Dow) = pyroxulam & fluroxypyr in wheat
- Panther SC (Nufarm) = flumioxazin
- Panther Pro (Nufarm) = flumioxazin & metribuzin & imazethapyr
- Quelex (Dow) = florasulam & haloxyfen in small grains
- Roundup Xtend (Monsanto) = glyphosate-me + dicamba-dga + VaporGrip - Registration pending
- Vaquero (Wilbur Ellis) = clethodim 2 EC
- XtendiMax (Monsanto) = dicamba-dga + VaporGrip 2.9SL
- Zidua Pro (BASF) = Zidua + Sharpem + Pursuit
- Zidua SC (BASF) = pyroxsulfone 4.17SC

**Major Weed Guide Updates**
**Fababeans** added to Small Acreage Crops - page 17.

**Liberty** rate structure changed to 32 to 43 fl oz/A for burndown.
- LL Corn = 32 fl oz/A POST
- LL Soybean = 32 to 43 fl oz/A POST
- LL Canola = 22 to 29 fl oz/A POST
- Season total = 87 fl oz/A.

**Roundup Xtend soybean** - strongly advised to read page 28 and paragraph E4 on page 81.
Refer to Monsanto and BASF web sites for application information.
Follow label with extreme exactness!
Herbicide registration pending:
- RU Xtend = glyphosate-me + dicamba-dga + VaporGrip
  64 fl oz/A = dicamba at 1 pt/A (0.5 lb ae/gal) +
  glyphosate at 1 lb ae/gal

**Aim** added as a preharvest desiccant in dry bean and field pea.
**Zidua** registered in sunflower.
**Spartan Charge** registered in safflower.
**Willowwood Sulfentrazone** registered in potato.
**Spray Adjuvants** wording restored from Web - page 74

**Spray Water Quality** wording restored from Web - page 76.
**Wick Application** wording restored from Web - page 77.
**Backpack Sprayer Calibration** wording restored from Web - page 77.

**Calculating Herbicides Mixtures** section added to help calculate herbicide concentration in small volume backpack/ handboom application - page 77.

**Crop rotation restrictions** clarified for several herbicides, including Everest and dicamba formulations - Banvel and Clarify - page 104-105.

**Herbicide Resistant Weeds:**
Palmer amaranth documented in MN from contaminated native seed mixtures primarily for pollinator plots. Please continue to watch for any Palmer amaranth in ND from transported seed.
- Group 14 PPO resistant waterhemp documented in MN.
- Group 14 PPO resistant common ragweed suspected in ND.
- Group 14 PPO and Group 4 (dicamba) resistant kochia likely to develop in ND.

**Herbicide residue and fall cover crop establishment** section expanded - page 107.

**Collecting tissue samples and interpreting residue test results** section added - page 108.

**Amount of herbicide active ingredient from a postemergence application to cause injury** section added - page 108.

**Dicamba residue levels in plant tissue to cause injury/loss** section added - page 109.

**Glyphosate residue levels in plant tissue to cause injury** section added - page 109.

**Weed of the Year** - Narrowleaf Hawksbeard - page 132-133.

**Emerging New Active ingredients:**
- tolpyralate (ISK Biosciences) - HPPD (Group 27) in corn
- tolpyralate (ISK Biosciences) - HPPD (Group 27) in corn

**Expected Weed Management Traits:**
1. Enlist Weed Control System (Dow)
   DHT 1 technology in corn = resistance to 2,4-D and “fops”
   DHT 2 technology in soybean = resistance to 2,4-D, MCPA, fluroxypyr, and triclopyr.
   Enlist DU herbicide = 2,4-D-choline salt + glyphosate-dma (1.6 + 1.7 lb ae/gal)
   3.5 to 4.75 pt/A = 0.7 to 0.95 lb ai/A 2,4-D +
   0.75 to 1 lb ae/A glyphosate
2. HPPD resistant soybean (Bayer/Syngenta)
   1. Balance Bean - isoxaflutole herbicide in soybean
   2. Balance GT - HPPD + glyphosate in soybean

**IR-4 Residue Studies to be Conducted in 2018:**
Dry bean/dry pea - sulfoxaflor
Safflower - cyclaniliprole
Sunflower - cyclaniliprole
Carinata - quizalofop
Quick reference information:
1. NDSU Weed Science Home Page:
   http://www.ndsu.edu/weeds/

2. <agdakota> list serve: Timely updates in pesticide registration and crop production information. To subscribe, send email to r.zollinger@ndsu.edu

3. U.S. registered pesticide labels:
   http://www.cdms.net/manuf/manuf.asp

4. North Dakota Department of Ag registered pesticide database:
   http://www.kellysolutions.com/nd/

5. SAFETY AND EMERGENCY PHONE NUMBERS:
   ND Poison Control Line: 800-222-1222
   ND Emergency Assistance Line: 800-472-2121
   Report pesticide incident to NDDA: 701-328-2232

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For information about pesticide certification contact the North Dakota State University Extension Pesticide Program
NDSU Dept 7060, 205 Walster Hall
Fargo, ND 58108-6050
Phone: 701-231-7180, Fax: 701-231-5907
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www.ndsupesticide.org

For pesticide enforcement, compliance, registration, and regulatory issues, contact the Agriculture Chemical Division at the North Dakota Department of Agriculture
600 E Blvd Dept 602, Bismarck, ND 58505-0020
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