Successful Weed Management Systems Includes the Use of Dinitroaniline

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The use of dinitroaniline herbicides (Prowl, pendimethalin; Treflan, trifluralin; or Sonalan, ethalfluralin) often referred to as the yellow herbicides is the first step towards successful weed management programs in peanut and cotton production systems. The strength of these dinitroaniline (DNA) herbicides is annual grass control (barnyardgrass, crabgrass, foxtails, panicums, etc.) and control of small-seeded broadleaf weeds such as Palmer amaranth (carelessweed and other pigweed species), Russian thistle (tumbleweed), and Kochia (ironweed). Most larger-seeded broadleaf weeds, like annual mornigglories, cocklebur, devil’s claw, sunflowers, and perennial weeds (silverleaf nightshade, field bindweed, lakeweed) are not controlled by these herbicides.

The rate of each DNA herbicide is dependent on soil type (the sandier the soil, the lower the recommended rate). High rates in sandy soil may injure crops. Check label for proper use rates and application methods.


Peter Dotray—Extension Weed Specialist

Although Valor SX has been registered for use in peanut since 2001, many growers have little or no experience with this herbicide. Valor has exceptional activity on annual mornigglories and sunflowers, and according to the label, other weeds controlled include Kochia, common lambsquarters, and several pigweed species including Palmer amaranth (carelessweed). Valor SX may be applied prior to planting or preemergence. Preemergence applications must be made within 48 hours after planting and prior to peanut emergence. Applications made after plants have begun to crack or after they have emerged may result in severe injury. Splashing from heavy rains or cool conditions at or near emergence may also result in injury and even delayed maturity and yield loss. In 2008, several studies were conducted across the High Plains to gain experience with this relatively unused peanut herbicide. Most of these studies were done in grower fields and plot size ranged from four to eight rows by 75 to 1200 feet. The soil type and irrigation/rainfall after application varied by location, so the results cover a wide range of environmental conditions.
Successful Weed Management Systems Includes the Use of Dinitroaniline Herbicides—Continued

for your soil type
and cropping
situation. If soil
conditions are
extremely dry
and large clods
are present herbi-
cide performance
will be less effec-
tive with these
herbicides. Keep
in mind that
when the DNA’s
were first intro-
duced over 30
years ago, farm-
ers were diligent with a two-pass
incorporation prior to bedding and
planting. This resulted in thor-
ough mixing of the herbicide and
excellent weed control. In recent
years many farmers have cut back
on incorporation to save
time and money. Ade-
quate weed control of-	en occurs with these
methods but herbicide
failures have also arisen
due to poor incorpora-
tion.

The DNA herbicides may be in-
corporated by mechanical means
or by irrigation. Incorporation
methods vary widely across the
state. A double-pass method of
incorporation is recommended on
most labels with the second incor-
poration made at an angle to the
first incorporation, but a single-
pass is most commonly used. Me-
chanical implements used to in-
corporate these herbicides include
a springtooth harrow, a disk, a
double or single stalkcutter, and a
rolling cultivator to name a few.
The better the implement mixes
and uniformly distributes the her-
bicide in the upper 1- to 2-inches
of soil, the better the weed con-
trol. Treflan should be incorpo-
rated within 24 hours after appli-
cation, Sonalan within 48 hours,
and Prowl EC within 7 days.
Prowl H₂O
must be incor-
porated prior
to weed seed
emergence. However, it is
best not to de-
lay this appli-
cation at all if possible.

Prowl and Sonalan may be surface
applied and then incorporated by
rainfall or irrigation. Three-
quaters to one-inch of irrigation
is necessary to incorporate (activate) these herbicides. These
products are very water insoluble
and larger amounts of irrigation
help to move them into the weed
germination zone. Both Prowl
and Treflan may be chemigated
into the soil. These applications
may not be the best way to incor-
porate Prowl, Sonalan, or Treflan,
but may be the only way to use
these herbicides in a reduced till-
age or no-tillage crop production
system. It is still better to apply
these herbicides in this method
then to not include them at all.
When surface applications fol-
lowed by irrigation or chemiga-
tion methods are used, herbicide
rates are generally higher when
compared to mechanically incor-
porated methods. Research con-
ducted at the AG-CARES farm
north of Lamesa by researchers
with the Texas Agrilife Research
suggested that Prowl provided
more consistent weed control
when compared to Treflan when
surface applied and watered in,
but Treflan performed better than
Prowl when chemigated.

Weed resistance to me many of
our postemergence herbicides has
become a greater concern in re-
cent years. Many areas of the
country are experiencing more
problems with weed resistances
than most of Texas. This is likely
due to the continued use of the
dinitroaniline herbicides. Contin-
ued diligent and proper use of the
dinitroaniline herbicides is one of
the biggest tools we have to com-
bat weed resistance issues. Al-
ways carefully read and follow label
recommendations.

If you have any questions give us
a call at 940.552.9941 ext. 233 or
e - m a i l a t
TBaughma@ag.tamu.edu.

“Always carefully read
and follow label
recommendations. ”

Proper incorporation enhances DNA performance
Weed control observations were not made at these locations because the primary focus was crop response. Effective weed control was achieved at all locations because additional weed control inputs were made as needed over the entire test area so the only variable in the study was the Valor treatment. No differences in peanut yield were noted between the Valor-treated and untreated plots at any of the six locations (Table 1). For more detailed results at each location, go to http://peanut.tamu.edu/pdfs/Valor2008.pdf. Results from these studies across the High Plains suggest that Valor is a safe option to peanut producers in our region. Although peanut injury has been observed in other states; and in the High Plains when rates exceeded labeled recommendations, and when a significant hail event occurred early season; we feel that this herbicide, when used according to label requirements, is a good option for peanut growers for early-season weed control (4 to 6 weeks of soil residual activity). Consult the Valor label, Valent Corporation, or Texas AgriLife Research and Extension personnel for more information regarding this herbicide. Similar tests will be conducted in the 2009 growing season, thanks to the support from the Texas Peanut Producers Board!

Call Pete @ 806.746.6101 with any of your weed control issues.

Table 1. Peanut yield as affected by Valor in 2008.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate lb ai/A</th>
<th>Prod. oz/A</th>
<th>Peanut Yield (lb/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AG-CARES</td>
</tr>
<tr>
<td>Non-treated</td>
<td>---</td>
<td>---</td>
<td>4656</td>
</tr>
<tr>
<td>Valor SX</td>
<td>0.064</td>
<td>2</td>
<td>---</td>
</tr>
<tr>
<td>Valor SX</td>
<td>0.096</td>
<td>3</td>
<td>4710</td>
</tr>
<tr>
<td>LSD (0.10)</td>
<td></td>
<td></td>
<td>NS</td>
</tr>
</tbody>
</table>

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