No-till farming is common in dryland production systems in the Golden Triangle area of Montana and is greatly recognized for improvements in soil structure, weed control, crop productivity, and improved soil health. However, this system often requires greater use of herbicides to control weeds. Most common weeds in this area include: perennial sowthistle, western evening primrose, buckwheat, clover, thistles, kochia, thistle, bindweed, wild buckwheat, wild oat, downy brome, and Persian dahlia. Glyphosate (Roundup), dicamba (Banvel/Clarity), fluoxyprorpyr (Starane), 2,4-D, sulfonylurea (SU), and pinoxaden (Axial) are the most commonly used herbicides for weed control in this region. In Montana, herbicide resistance to one or more of the herbicide groups have been confirmed in kochia, wild oat, Persian dahlia, Russian thistle, and downy brome populations in the predominantly no-till, agronomic production fields. Glyphosate and dicamba multiple-resistant kochia is an increasing concern for growers in this region.

Herbicides are the most commonly applied pesticides in agro-ecosystems, and their overuse may pose significant adverse impacts on beneficial insects and environment. Nevertheless, the use of herbicides has increased many folds in last two decades. Other than killing unwanted plants (weeds), herbicides pose unintended consequences of injuring non-target plants, herbicide drift as spray-particle drift or vapor drift and herbicide-contaminated soil are major causes of injury to non-target plants. Farmers are also concerned about the herbicide carryover. This may happen due to soil’s capability of some of herbicides used for weed control in agronomic crops. Injury due to residual herbicides can also be responsible for drastic crop yield losses, such as in canola crop due to 2,4-D, or in pulse crops due to carryover of certain Group 2 sulfonylurea herbicides applied in wheat. Malformation and chlorosis are some of the symptoms in crop plants that may be associated with herbicide carryover. Another source of crop injuries could be the presence of herbicide residues in manure, compost, or hay. Contaminated manure produced by animals fed on herbicide-treated hay can be a potential concern for gardeners and organic producers. Common understanding exists among farmers regarding the above-mentioned concerns, but impact of herbicides on pest and beneficial insects is still limited, and hence, is a less communicated subject. Association of herbicides with insects is complex and reported to influence various guilds of insects in a diverse manner. Herbicides can be directly toxic to insects or can affect them indirectly by changing food supply and can have both indirect and direct effects on pest and beneficial insect populations in agricultural communities. The insects before attacking the crop plants can stay on weeds (alternate host) and removal of these weeds can help in pest insecticides or can expose the crop pest for greater levels of damage. Direct exposure to toxic herbicides can be harmful for beneficial insects and can decrease their population in the field. On the other hand, it can also influence the parasitism and predation from flowerers of certain weeds. In some instances, the pest can shift their host plants from the weed to the crop and that can be harmful for the crop, causing an outbreak of the pest. Such as, an abrupt increase in the population of Lygus bugs due to eradication of their wild host plant (Buddleja davidii) and alfalfa close to the fields of peas and lentils). On the other hand, the level of harm posed by herbicides to predatory insects can vary by insect species and their life stages (eggs, larvae, or adults). Several carabids and various species of ladybird beetles are reported to be negatively affected by certain herbicides. Insect parasitoids, another group of beneficial insects, can also be affected by certain herbicides and the major impact of herbicides on these beneficial insects is unknown. Further, bees, another group of beneficial insects, plays an important role as pollinators. Herbicides and other pesticides, such as insecticides, fungicides and acaricides used in farms were detected in honey and wax extracted from bees in a study done in Nebraska by Johnson et al. (2010). These pesticides and herbicides can also influence the soil micro-fauna including soil insects, otherarthropods and both predatory and phytophagous nematodes. Moreover, other than direct herbicidal impact and indirect impacts of herbicides on insects, added factors also need to be taken under consideration while understanding the specific association of herbicide—weed—insect. If used properly and perceptively, herbicides can be used to aid the beneficial insects. However, herbicides need to be used as a last resort, and not as a tool to control weeds. Further, some common entomopathogenic fungi (Metarhizium and Beauveria sp.) used against several major insect pests are found to be compatible with commercial herbicides.

In the Golden Triangle area of Montana, spring wheat and winter wheat are the major cereal crops grown under no-till dryland production. Wheat stem sawfly, wireworms and wheat mite are the major pests of wheat. This region contains several weeds (alternate host) and herbicides are used to control weeds. Further, some common entomopathogenic fungi (Metarhizium and Beauveria sp.) used against several major insect pests are found to be compatible with commercial herbicides. However, the actual impact of herbicide overuse on insect pests and their natural enemies in no-till farming is not known.
Trader's Dispatch, March 2018 — Page B4

Farm Bureau Life Insurance Company*/West Des Moines, IA *Company provider of Farm Bureau Financial Services A146 (2-18)

to change the current rate for future purchases without notice at any time for any reason. Contact the company for the current rate.

rates following the initial rate guarantee period are neither guaranteed nor estimated for the future. The Company reserves the right

nor estimated for the future and premium banding is as follows: Years 1-4 2.25% ($25,000-99,000); 2.50% ($100,000+). Credited
rate for the New Money 4(Select IV Fixed premium Annuity) product. Current interest rates posted above are neither guaranteed

based on the claims-paying ability of Farm Bureau Life Insurance Company. 2Based on the Company’s 3/1/18 declared interest

charges for early termination are as follows: Year 1: 8%, Year 2: 6%, Year 3: 4%, Year 4: 2%. 1The guarantees expressed here are

Minimum premium payment required, offer valid for a limited time beginning 3/1/18. Four year contract required, surrender

Overuse of herbicides: Yes or No?

With what little we know about this association, some approaches can be analyzed and then applied in our area. In no-till cropping

systems, trap crops or cover crops can be used to harbor ants and termites; hence, warding the direct damage done by these

insects to the main crop. Nevertheless, this complex relationship needs better understanding to arrive to ecologically-friendly

approaches, such as using mustard species as a trap crop surrounding wheat fields, where cutworm population is higher. The trap crop

can be grown to lure pests away from the cash crop until the larvae mature and feed on the trap crop. Then, they can be treated with

an insecticide in a localized area rather than treating the entire field. Sometimes, weeds also harbor the predatory insects as their

alternative host plant e.g., ladybird beetles and shield bugs. By avoiding overuse of herbicides in the fallow periods in no-till

fields, these predatory and beneficial soil insect fauna can be improved. Alternatively, soil covering with cover crops during the far-

low periods or between cash crops can aid in suppressing weeds and insect pests through allelopathic mechanisms; hence, reducing

the overuse of herbicides or insecticides and enhancing biodiversity and productivity of no-till farming systems of this region.

Essentially, chances of overusing the herbicides are obvious and enticing when it comes to getting good yield and seeking an
economical way to control weeds, but herbicide use should be well thought, in terms of its effect on several ecological components,
such as beneficial insects. Observation and scouting to analyze the residual effect of herbicides on insect survival can help us to
understand this association. At present, several aspects of this association are vague and undetermined, but wise and judicious
use of herbicides is critical. The lack of information exists on the potential influence of herbicides more commonly used in
no-till farming systems on insect pests and their natural enemies, which is unsettling. Assessing direct impacts and host-plant-
mediated indirect impacts of commonly used herbicides on the soil fauna will be inevitable in near future. Nevertheless, judicious
use of herbicides will help us to reduce their adverse impacts on environment and ecological components.

Absolutely Incredible Kids Day

Date When Celebrated: in March, date varies
Sure, your kid is pretty good. But, my kid is absolutely incredible! As a matter of fact, all of my kids are absolutely incredible. As a parent, I am going to take full advantage of this day to express my brats.

If the paragraph above doesn’t give you a good impression of the meaning and purpose of this day, then you probably don’t have kids...yet! When those offspring do arrive, you will most certainly use this special day to profess how incredible your kids are. Amazingly, tomorrow they go back to being brats.

Did you Know? “Kids” are baby goats. Does that mean this day is really about incredible goats? ...Nah!

Celebrate today by letting your kids know how good they are, and how much you love them.

Origin of “Absolutely Incredible Kids Day”:
Campfire USA created this day as a day in 1997, to show kids they are loved and cared for. Among other things, they suggest you write a letter to your kid today.

It used to be held on the third Thursday in March. Now, it seems to vary.