



## Yield- and production-based insurance options in Wyoming

By James Sedman and John Hewlett

Crop insurance has become a major, if not essential, part of most producers' risk management plans.

Crop insurance is one way of managing production risks and establishing a base revenue stream for an individual operation. The umbrella of programs offered through federal crop insurance provides yield-based coverage for most major crops in farming areas of Wyoming. Production- or yield-based policies have been around the longest and are the most common. In many cases, they are the simplest type of coverage, and many consider them necessary for managing production risks. These policies may be based on actual production history (APH) or may be group policies where indemnities are determined by county average yields.

### Types of Coverage

Multi-peril insurance policies (MPCI) are the most common type of crop insurance. They insure against yield losses on individual units. Unit selection (acres) availability can vary by area and producer,



so producers should check with a crop insurance agent for availability. A producer insures the units or acres, and an indemnity payment occurs if the producer's average yield drops below the yield determined by the coverage level selected.

These APH-based policies revolve around the producer's yield history contained in the APH. This production history is based on four to 10 years of production records for a particular crop. If the producer does not have enough years

of production records or if years are missing, a transitional yield (t-yield) based on county average yields is assigned. Once a producer has established an APH, the yield guarantee (usually from 55 to 85 percent) and the price guarantee (55 to 100 percent) are selected.

It is important to note MPCI policies do not insure against losses of revenue from changes in price. MPCI policies pay indemnities if yields drop below the APH yield guarantee at the coverage and price

levels selected. Currently, yield insurance policies are available to insure production levels for the following crops: alfalfa seed, barley (feed and malting), corn (grain and silage), dry beans, forage (seeding and production), millet, nursery, oats, potatoes, sugar beets, sunflowers, and wheat.

The APH yield is not used in group risk products (GRP), where losses are determined usually on a county-wide basis. Group risk products, such as the GRP-Rangeland (or net hay index) policy, rely on county averages when determining indemnities. The county average yield is determined by the Risk Management Agency (RMA) through historical data. The actual county yield is determined at the end of the crop year using National Agricultural Statistics Service data.

Producers are paid an indemnity if the actual yield falls below the established county average. Using the GRP-Rangeland policy as an example, when the county average dry land hay yield (the figure used to determine pasture losses) drops below a certain level, producers receive an indemnity payment based

on the insured acres covered under the policy. Group risks plans are available for rangeland (GRP-net hay index and Pasture, Rangeland, Forage-vegetation index) and wheat in Wyoming.

### For More Information

Consult a local crop insurance agent for more information on which production insurance policies are available in your area. An agent is able to tailor a policy to an fit individual risk management plan. Crop insurance, along with solid record-keeping and long-term planning, can help manage production risk.

For more information on this and other risk management topics on the Web, visit the Western Risk Management Library at [agecon.uwyo.edu/RiskMgt](http://agecon.uwyo.edu/RiskMgt).

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## Spoke wheel injection puts fertilizer where it's needed

By Sandra Frost

Rising fertilizer costs and reduced availability of dry fertilizer formulations are spurring interest in more efficient use of liquid nitrogen.

Fertilizer placement and timing can affect crop quality and yield. Spoke wheel injection applies liquid fertilizer at single points at precise intervals, amounts, and depths.

A spoke wheel injector is a tractor-pulled machine that releases liquid fertilizer as the wheel, with hollow "spokes" through which fertilizer can be injected, rotates.

Spokes are corrosion-resistant stainless steel, while tips are hardened alloy. Wheels are mounted on a tool bar with spring-loaded shanks that ensure tip penetration into the soil. Multiple wheels can be adjusted on the tool bar for variable row crop widths, or wheels can be placed close together for non-row crops, such as alfalfa, wheat, or grass.

Liquid fertilizers such as anhydrous ammonia and urea ammonium nitrate (UAN-32, 32 percent nitrogen) can be precisely placed with spoke wheel injection. Fertilizer can be applied prior to seeding (pre-plant), at the time of seeding (starter), or after crop emergence (side-dress).

Spoke wheel injection of liquid fertilizers has real potential to benefit producers. It places liquid fertilizer below ground where it is less sus-

ceptible to volatilization (changing to gaseous form). Fertilizer in the crop root zone is immediately available. Split spoke wheel treatments can deliver nitrogen at planting and again at the peak nutrient uptake demand of a row crop or grass pasture. Fertilizer runoff with flood irrigation waters is avoided, as well as leaching through the soil profile due to improved uptake by the crop (nitrogen use efficiency, NUE).

Spoke wheel application does little damage to crop roots compared to applications made with coulters or knives that cut roots. Spoke wheel injection can also be used over plastic mulch. Weed densities may be less with banded nutrient applications such as spoke wheel compared to broadcast applications because fewer nutrients are available to the weeds and more are available to the crop. A Northern Great Plains study found weed densities and biomass of wild oat and green foxtail in spring wheat

fields decreased 20-40 percent when fertilizer was side-banded at a depth of 2.4 to 3.6 inches rather than broadcast.

Alan Blaylock, former University of Wyoming Cooperative Extension Service (UW CES) soil fertility specialist, has conducted several research projects using spoke wheel injectors. An economic analysis of alternative nitrogen fertilization methods for sugar beets at the Powell Research and Extension Center found that, based on optimum nitrogen rates, point injection of fertilizer returned a higher profit per acre than broadcasting or knife banding (\$966, \$899, and \$872/acre, respectively) and used 33 lb/acre less nitrogen than broadcast treatments.

A second experiment on ridge-tillage corn response to point-injected nitrogen fertilizer demonstrated that point injected treatments yielded higher than broadcast treatments.

Sara Skalsky of Powell, who earned a master's degree in agricultural economics from the UW College of Agriculture in 2006, investigated which fertilizer and associated application method in sugar beets could make the most profit. Skalsky, who conducted her research in 2004 and 2005, found at the time that knife or spoke injection of liquid urea-ammonium nitrate (UAN) was more cost effective than using granular ammonium nitrate. Further, she



found that using a spoke wheel to inject 130 pounds of liquid UAN per acre on sugar beets netted \$1,241 revenue while knife injections netted \$1,192 compared to \$1,100 in per-acre revenue for the same amount of granular ammonium nitrate.

The cost of spoke wheel injection equipment may be justified now by the higher fertilizer and fuel costs. Spoke wheel injection can reduce the number of passes over a field at planting time while strategically placing liquid fertilizer to be plant available and to avoid volatilization. Growers who already have tanks

for knife applications can purchase spoke wheels and fit them to their tool bars.

Additional information available at: <http://agecon.uwyo.edu/farmmgt/software/default.htm>

[http://agecon.uwyo.edu/InsuringSuccessBarnyardsAndBackyards/2007BandB/wlr\\_207\\_03.pdf](http://agecon.uwyo.edu/InsuringSuccessBarnyardsAndBackyards/2007BandB/wlr_207_03.pdf)

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*Spoke wheel injection places fertilizer in the root zone and is less susceptible to volatilization.*