

Ag Fly-By



Fly-on forage is right on the money.

by Ed Haag

Double-cropping has just taken on a new wrinkle — seeding by airplane a little earlier than usual. After all, what's wrong with getting the next crop started before the current one is harvested?

"Nothing," says Ed Ballard, livestock consultant and retired University of Illinois Extension specialist. "By flying on cereal rye, spring oats and turnip seed into standing corn, we can get about 30 to 45 days of forage growth before the corn harvest."

He and a growing number of converts to the idea have been doing just that and achieving the kind of success that most producers can only imagine. This translates into a 4-pound (lb.)-per-day gain on stockers, 7-plus body condition scores (BCSs) on lactating cows and heifers, and an absence of scours in newborn calves, all taking place on open winter range for less than 25¢-50¢ per animal per day. With the head start, fields are ready for grazing by the beginning of October.

Most years, grazing continues primarily on the oats and turnips into January,

when the animals are removed. They are reintroduced in the middle of March to graze the cereal rye. This continues into May, when the next cash crop is planted.

"With this system, you can feed a cow for about a \$150 per year," Ballard says, adding that it is less than half of the Illinois state average of \$313.66.

In addition, Ballard's research has recorded reduced tillage and production costs, as well as better weed control, less erosion and improved nitrogen (N) utilization.

New production opportunity

To understand how Ballard's system works, one must take a closer look at the life cycle of field corn. Thirty days prior to harvest, the plant stops growing and begins to die. It has entered its drying phase, which means that all uptake of water and nutrients ceases.

In Ballard's view, that 30- to 45-day drying period has been, until now, an unexploited production opportunity — the perfect

time to introduce a new crop. Without competition from the corn, the new crop has total access to the remaining nutrients and moisture. Initially, the corn canopy shades the ground from direct sunlight. This helps suppress weed competition while preventing the evaporation of moisture needed for the germination of the new seed.

When regular field corn matures, the bottom leaves of the plant turn brown, usually about Aug. 20 in his area. That signals Ballard to fly on the next crop.

Time-released forage package

Cliff Schuette has been working with Ballard's program since 1998, when he began attending the Extension specialist's seminars on intensive grazing practices. Schuette is an operating partner on a 900-acre mixed farming and cattle operation located 40 miles east of Saint Louis, Mo.

"Our growing season is long enough that we can extend our grazing and take advantage of a late-season forage crop," he says. "That's why flying on forage seed works."

He notes that the practice has been instrumental in bringing his overhead costs into line. Prior to its introduction, Schuette believes he was spending far too much to produce his beef. With fuel and other production costs on the rise, he was determined to feed his cattle for less, and he was convinced that extending his grazing season was the answer.

The lynchpin of his new, more cost-effective approach is his turnip, spring oats and cereal winter rye forage mix.

For Schuette, the combination of the turnips, the cornstalks and the two grains provide a time-released forage that offers both fall and spring grazing. The turnips and oats are first to emerge, he explains.

"When the cattle are released into the fields in the beginning of October, they go straight for the oats and turnip tops," Schuette says, adding that the cattle consume the oats and the turnip tops in the fall and turn to the bulbs in early winter.

In the first of the year, Schuette moves his cow-calf pairs off the oats and turnips and onto stockpiled fescue through March.

Table 1: Field studies No. 1 (22 acres) & No. 2 (40 acres)

Spring oats, cereal rye and turnips in cornstalks 22 acres & 40 acres

Aerial-seeded in standing corn in August 2003

Seeding rate:

Spring oats: 1½ bu. per acre at \$4.00 per bu.	\$6.00 per acre
Cereal rye: 1½ bu. per acre at \$4.00 per bu.	\$6.00 per acre
Turnips: 3 lb. per acre at \$2.75 per lb.	\$8.25 per acre

Airplane cost per acre \$10.00 per acre

Total cost per acre for seeding \$30.25 per acre

Total costs for 22 acres in Field Study No. 1 \$665.50

Total costs for 40 acres in Field Study No.2 \$1,210.00

Field Study No. 1 — 22 acres

30 cow-calf pairs (avg. cow wt.: 1,050 lb.)	795 grazing days in fall
30 cows in spring	1,985 grazing days
Total grazing days	2,780
Cost per grazing day	\$0.24

Field Study No. 2 — 40 acres

30 cow-calf pairs (avg. cow wt.: 1,400 lb.)	
Total grazing days Nov. 15, 2003, to Jan. 20, 2004	2,802
Total grazing days April 1 to April 14, 2004	588
Total grazing days May 10 to June 20, 2004	1,722
Total grazing days Nov. 15, 2003, to June 20, 2004	5,112
Cost per grazing day	\$0.24

Source: Data provided by SFAR Project-University of Illinois.

“There is a definite loss of quality by January,” he says, adding that the remaining turnip bulbs are strip-grazed by his dry stock.

By March 15, Schuette has moved his cow-calf pairs back onto the fields to graze the early emerging cereal winter rye. To get the full benefit of the rye grazing, Schuette usually rotates into late-planted beans.

“We can then graze the winter rye as late as May 20,” he says. “Two-thirds of the rye’s production is in the spring.”

Cost-effective system

As Ballard outlines in two field studies conducted in the 2003-2004 grazing seasons (see Table 1), Schuette saw a dramatic shift in his cost to return on investment (ROI) ratios when he began flying on his blended forage.

For Ballard, the optimum density on the fly-on system works out to about one cow per acre for a 150-day winter-grazing period.

Schuette cautions growers not to fly on seed too early. “Wait until the bottom third of the corn leaves have turned before flying on your seed,” he says. “A good rule of thumb is [to apply seed] around the same time as you would chop the corn for silage.”

He notes that if seeding occurs earlier, the leaf mass of the corn plants will prevent essential sunlight from reaching the newly germinated seedlings.

“One common mistake is that guys fly it on too early,” Schuette says. “Then the seeds sprout and die off, because no photosynthesis can take place.”

When properly timed, the corn canopy will initially provide the moist, shaded environment needed for successful seed germination. As the corn’s leaf mass dries and recedes, more sunlight will reach the young plants, allowing photosynthesis to occur.

Total in-field ration

Schuette is particularly pleased with the diversity of feed the fly-on system offers.

“They get a smorgasbord ration,” he says. “We have learned that if you give the animals a chance to get their complete meal, they are smart enough to know what they need to put in their mouth. We don’t have any problem with foundering.”

He notes that when his cattle are feeding on low-fiber turnips, they have a tendency to balance their diet out with high-fiber corn residue. Schuette makes sure that the protein levels in the oats and turnip greens are ideal by waiting until the plants have matured to the point they have dropped down from their peak protein levels of 20%-25% (see tables 2 and 3). An added advantage to this strategy is that he increases his volume.

“This means we can stockpile oats and turnips into January and still maintain good

feed quality,” Schuette says, adding that, in general, animals grazing off the extended system can be expected to see a 2- to 3-lb. weight gain per day.

Other benefits of program

Ballard has recorded similar gains in his cow-calf research and up to 4 lb. per day on stockers. “That is up there with confinement feeding, and the animals remain healthier on open ground,” he says.

For the Illinois livestock consultant, cost-effectiveness and weight gain are only two of several benefits offered by the fly-on grazing system. Recent University of Nebraska research shows that the incidence of scours

is much lower in calves whose mothers give birth in an open environment where there is enough space to segregate calves of different ages than in an environment where all calves are born in the same location.

As a result, ranchers like Schuette benefit from lower calf mortality rates, healthier offspring and better weight gain overall. “We watch our stocking density at calving,” he says. “Rather than rotational grazing in March, we let them have the whole field until they are done calving.”

In addition to the benefits to the cattle, both Schuette and Ballard have seen better erosion control, more efficient nitrogen

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Table 2: Nutrition profile of turnips, spring oats, rye and cornstalks, South, Winter 2003-2004

Data	Nov. 11	Dec. 4	April 6
Yield	4,071	2,792	1,205
Moisture, %	79.53	71.15	69.32
Crude protein (CP), %	7.36	5.98	14.86
Calcium (Ca), %	0.62	0.48	0.39
Phosphorus (P), %	0.22	0.14	0.34
Magnesium (Mg), %	0.25	0.19	0.15
Potassium (K), %	2.02	0.99	1.59
Sodium (Na), %	0.040	0.011	0.016
ADF,* %	38.52	56.92	30.67
Copper (Cu), ppm	7	7	7
Manganese (Mn), ppm	85	130	55
Iron (Fe), ppm	890	380	450
TDN*	58.65	37.22	67.76
NE _l *	0.60	0.36	0.70

*ADF = acid detergent fiber; TDN = total digestible nutrients; NE_l = net energy for lactation.

Source: Charts provided by SFAR Project-University of Illinois.

Table 3: Nutrition profile of turnips, spring oats, rye and cornstalks, North, Winter 2003-2004

Data	Dec. 4	Jan. 7	Feb. 11	March 11	May 6
Yield		3,006	3,677	3,992	1,993
Moisture, %	76.17	70.27	76.62	56.39	81.7
Crude protein, %	9.96	13.90	15.44	9.63	19.8
Calcium, %	0.56	0.62	0.60	0.46	0.73
Phosphorus, %	0.13	0.37	0.32	0.18	0.40
Magnesium, %	0.17	0.20	0.18	0.18	0.21
Sodium, %	0.030	0.025	0.019	0.012	
ADF,* %	48.92	39.33	29.09	51.23	54.3
Copper, ppm	4	5	6	8	
Manganese, ppm	39	51	42	130	
Iron, ppm	320	420	221	608	
TDN*	47.1	57.88	69.55	44.41	70.1
NE _l *	0.47	0.59	0.72	0.44	
RFV*					116.8

*ADF = acid detergent fiber; TDN = total digestible nutrients; NE_l = net energy for lactation; RFV = relative feed value.

Source: Charts provided by SFAR Project-University of Illinois.

cleanup, less tillage and lower production costs.

Some limitations

In spite of its many benefits, Schuette is quick to point out that there are some limitations that a producer should be aware of before attempting to integrate turnips, rye and oats into a cropping system.

“You do have to modify your corn

chemical program,” he says. “For example, we have found that we can’t use more than 1 pound of atrazine per acre, and no later than June 1, or it will kill the young seedlings in August.”

Schuette recommends consulting a local farm chemical dealer before proceeding. Another issue that might arise is scheduling a plane to do the seeding. He notes that in his area, he is in direct competition for

plane time with soybean growers who need sprayers to control aphids and other insect pests.

Finally, Schuette says, for an extended grazing system to work over the long term, a producer must pay close attention to the genetics of the cattle. He has observed in his herd that not all cows do well on a grazing diet. “We have animals that have body scores of 4 and animals with body scores of 7 that are grazing the same diet,” he says. “We are culling heavily now so that when prices drop, our remaining animals will be efficient enough feeders to still make us money.”

