

## **Corn in Fescue**

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In this article I would like to explain my experiences with planting corn in fescue pastures as a means of supplemental feed during the summer grass growing slump we invariably experience in central Indiana. It is my hope that this article may provide encouragement, ideas, and inspiration to others who are also dealing with the challenge of reducing input feed costs for ruminant livestock production. I was motivated to begin this “experiment” during the mid 1990’s when I faced two hurdles to feeding my small cattle herd. My first problem was property that had very low fertility and organic matter due to years of row crop farming. The second motivation was that central Indiana had endured a series of droughts (majority of the seasons since 1988) resulting in poor pasture conditions and high supplemental feed costs.

During the years of 1999 through 2000 I found that planting corn in established fescue grass pastures could result in rates of return of 54% to 119% over input costs. I arrived at this rate of return using replaced hay value of \$25 per round bale. The first three years I paid for custom hire to no-till drill the corn into the fescue pastures and the last year I performed the planting myself. I found the best corn growing performance when I used a “pop-up” fertilizer at planting time, but that year was not the highest rate of return to investment. Following are the rates of return by year and planting method:

Year	Planting method	Fertilizer used?	Cost of planting	Value of feed grown	Return on Investment
1999	Crust-buster no-till wheat drill	No	\$150	\$320	113%
2000	6-row no-till corn planter	Yes (starter only)	\$325	\$500	54%
2001	Small no-till grass drill	No	\$65	\$125	92%
2002	Home-made no-till unit	No	\$80	\$125	56%

All plantings were performed on a single day resulting in a narrow period of time during which replacement feed was available. I allowed the cattle to graze the corn over a period of 4 to 6 weeks. The cattle utilized the corn stocks best when I “strip” grazed the corn with an electric wire moving the wire forward about 100 feet every 3 to 4 days.

This corn was not what most people typically have in mind when they think of a central Indiana cornfield. Consider first that corn grown with almost no fertilizer is not the standard deep green color we are used to but rather is a pale sickly yellow. Second, most of this corn never put on ears. I did find that corn planted through areas where I fed round bales the previous year exhibited both the satisfying green color and growth of small ears. The year I used starter fertilizer more of the plants put on ears. The bottom line of the experiment is that, in every year, whether return on investment was high or low, I always saved money by planting corn into the pasture in lieu of feeding purchased hay. Because I strip grazed the pale (low nitrogen) corn, the cattle were in no danger of either nitrate poisoning or founder.

The year I used starter fertilizer I was especially careful to strip graze. Because the stalks had more ears, potential for founder existed. I noticed that the cattle quickly realized how to straddle the row of corn and selectively strip the small ears right off the stalks. If I allowed the cattle to

continue doing this they most likely would have foundered quickly. Instead, I restricted the cattle to smaller “strip” zones so that they had to finish eating the leaves and stalks before I allowed them to the next zone of whole plants.

I decided to try planting the corn myself in year 2002 after custom hiring the planting in each of the previous years. That presented a problem because I did not own no-till corn planting equipment. I need to stress that my decision to plant the corn myself was not because the custom help did a poor job, but rather was an issue of control over the timing of the planting. Most people who own no-till equipment need to tend to their own fields first in order to pay their own bills. Therefore, I always had to wait until the end of the planting season to have my corn planted and thus ended up with a shorter available growing season. I also usually missed any spring rains so that whatever rain we received in June or July (which wasn't much) was all my corn had to grow on. I think earlier plantings would have resulted in some better yields. Also, if I had my own equipment, I could stagger the plantings so that all the corn didn't mature at the same time, which for me seemed to end up being late August or early September. My corn was ready to graze when the plants were still green. I wasn't necessarily waiting for a large grain yield. The whole plant was a resource to me, and a green plant provided more nutrient value than a brown plant.

How could I plant corn myself for a small number of cattle and realize any kind of economical feed results over equipment costs? That was a problem. I looked at used no-till corn planters at auctions and the cheapest thing I saw went for \$2000. I wasn't even sure if it worked either. It would take many years to make up the \$2000 investment feeding only 20 or 30 cows. What I decided to do was modify equipment I already had. Since the result I was seeking was to just grow corn plants for cows to graze, precision planting was not a priority goal.

A word on fescue

But before I tell about my homemade corn planter, I would like to say a little bit about fescue. I've heard only one popular speaker from Missouri regularly make positive statements about fescue. Most forage experts don't like fescue for a variety of reasons. However, some studies show that, in the early stage of maturity, fescue has some impressive feed values. Also, as far as I've seen or read, fescue is about the only forage that predictably “stockpiles” well (live in the field) for winter feeding. There are some annual brassicas that can be used but must be fall planted, and, with droughts, that can be very risky. Anyway, I don't consider fescue to be the noxious weed as assumed by others. Fescue is no doubt a less powerful feed but fescue has some good uses. For my situation, probably the best quality of the fescue is its ability to put down a solid root mass in about 3 years to conserve my worn out soil. I grew my fescue with no fertilizer. Now I have a good sod base where earthworms are growing and other biological activity is evident. With this base I can always experiment with the expensive, and possibly fickle, forages later. In the mean time, I have a developing root mass established in the pastures so I can experiment with things like corn planting without eliminating my precious sod. Fescue is relatively difficult to kill, but that is a good thing when aggressively planting corn into it the way I did.

OK, the corn planter I came up with was not conventional but it was economical. I already had a 1940s vintage John Deere Van Brunt wheat drill. This drill, however, was designed to plant small grain crops into fully tilled and leveled fields. My undisturbed fescue sod was not a proper seedbed for such an old style drill. I tried it once without previous tillage and all that happened was the drill laid the seed on top of the ground. Corn does not germinate and grow well laying on top of the ground. So what I decided to do was rig up something to till small zones ahead of the old Van Brunt drill. This idea is very similar to the concept found on regular no-till corn planters or no-till grass drills. My first attempt was to mount something directly to the grass drill. I welded a separate bar to the drill and mounted small subsoiler shanks to the bar. The subsoiler shanks were the “scarifiers”

found on landscaping box grader blades. I thought this was a good idea, but the shanks broke off within 20 feet of use. That was in 2001. I put the drill away in disgust after I'd spent two days welding mountings to the drill only to have it all fall apart in five minutes. What I did notice in those brief moments was that the shanks carved a uniform trench in which the drills smoothly rode while dropping the corn kernels into contact with bare soil, i.e. there was no sod in the trenches. I mounted only 3 shanks to the drill. Since the drill had 13 holes I plugged the remaining drill openings in the seed box with duct tape. My planting that year seemed a failure so I hired out the custom planting for a third time. I had a whole year to reconsider how I could beef up my no-till design.

The next year I was planning to contract out the planting again and leave the drill in the barn. But, as usual, time was short. In 2002 we had an extremely wet May and only a short planting time after the soil dried out. While I waited for my place in the custom hire schedule, I got out my welder and tried a new idea. I decided to weld brackets to a toolbar and mount the toolbar to my 7-foot grader blade. The toolbar was nothing more than a 7-foot 2.5-inch diameter pipe. I mounted the three shanks approximately 36 inches apart on the pipe using welded brackets and U-bolts. Because the grader blade system was very robust the mini-subsoiling mechanism held up with no failure. I hitched the old grain drill directly to the back of the grader blade and adjusted the position of the shanks lining them up with three of the drills. I planted 10 acres to corn on June 7.

I had only two problems with my grader blade and drill set up. First, the three point mounted grader blade tended to drop too low to the ground when the tractor made sudden movements upwards on slopes. I could have remedied this by adding wheels or skids to the grader blade to make it float on top of the ground, but I didn't get around to it this year. This year my fix was to keep an eye on the grader blade and adjust it by hand as the field contour changed. That method was not efficient, but it worked. My other problem was that I had no closing mechanism to backfill or close over the seed once it was deposited. For part of the seeding I decided to run a small disc and drag back over the trenches. This second operation served to backfill about 50% of the soil to cover the seeds. The seed that was closed with backfill tended to sprout faster and grow better than the seed in open trenches.

Earlier and later plantings should allow the window of grazing to be widened in both directions. In any event, the cost of doing all this should be compared against the cost of alternatives. The summer slump seems to be predictable in central Indiana so it's a safe bet some alternative to cool season grass pastures will be necessary for a period of time each year. In my case I already owned a tractor, grader blade, and small drill. Additionally, I did know how to weld reasonably well, and I enjoyed the creative fabrication. Except for the control over planting timing, it appears, from my figures, to be more economical for a small farmer to hire out the planting. In my case the seed was free as I have a friend who provided surplus seed. I've not tried it myself, but I would assume even medium quality whole feed corn would produce an acceptable field for grazing given the goal is not necessarily to produce 200 bushel grain yields. Other alternatives, such as just feeding the feed corn, buying extra hay, or establishing other warm season pastures for the summer slump period should also be compared to the alternative of planting the grazing corn.

I found from this experiment that the cattle ate the entire corn plant. By the time grazing was finished, the field looked much like any other grass pasture on the farm save for some of the deeper trenches. Most of the trenches had been backfilled by the cattle hoof action. I expect winter frost heave to fill any remaining depressions. I also noticed a fair amount of volunteer clover growing in the remaining trenches. I think that next year I will seed clover along with the corn in order to save even more time and money.