

## Compilation of Posts:

May 15, 2021:

Long and fairly technical post ahead (more interesting to livestock producers than to our followers who don't have livestock, but if you're bored and curious, feel free to read on) We were selected by the NCR-SARE (North Central Region Sustainable Agriculture Research and Education) program to conduct some on-farm research this year involving grazing annual forages. As part of this research, we plan to share our experiences through monthly updates. Hopefully this will help other producers decide whether or not to add an annual forage mix to their crop rotation for grazing.

We are grazing a mix of triticale and winter cereal rye; once the soil warms up we'll plant a 7-way mix of summer annuals; then this fall we will plant a more diverse biennial mix for fall/winter grazing as well.

Observations:

In our first pass, the cows and sheep harvested a total of ~7.7 dry matter tons (591.8AU days\*26lbs DM) over ~34.5 acres.

Carrying capacity from April 22nd to May 12th ranged from 15.4 to 25.9 AU/Acre/Day. Raising stocking density from 15.5 to 17.4 AU/Acre prematurely (May 1-May 4) had a significant impact on residual. By May 6th, the residual was back at an appropriate level (17.3 AU/Acre). We will watch these paddocks for longer term impacts.

Towards the end of the pass (May 8-12), the density was 24-26 AU/Acre with the most residual.

The cattle and sheep are now on perennial pasture so we can target a ~30 day rest period before restarting the pass. The first paddock we grazed is already ~2 inches higher than when we started.

\*\*This product was developed with support from the Sustainable Agriculture Research and Education (SARE) program, which is funded by the U.S. Department of Agriculture -- National Institute of Food and Agriculture (USDA-NIFA). Any opinions, findings, conclusions or recommendations expressed within do not necessarily reflect the view of the SARE program or the U.S. Department of Agriculture. USDA is an equal opportunity provider and employer\*\*

June 11, 2021:

Here's our monthly status update on our 'Grazing Annual Forages' NCR-SARE Project. We were able to graze our second pass from 5/19 to 6/5 with the cattle, but the 9 ewes with their lambs are still going.

Unfortunately, the air temps turned right up to 90+ degrees before our soil temps were even at 60, so the triticale/winter cereal rye was maturing before we were able to get the summer annuals planted, so we're back on pasture while we wait for the summer annuals to get started. They were planted on 6/5 and a few seeds were germinating as of 6/9 with at least 3 of the 7 different species germinated as of 6/10. We're back in a 'moderate drought' and the chances of rain are slim for the next couple weeks, so we'll see what happens.

Here is our data thus far, as well as some general observations:

In the 1st pass, the livestock grazed ~8 tons of dry matter. In the 2nd pass, the livestock grazed ~10 tons of dry matter. In total, we were able to utilize ~18 tons of dry matter across 42 acres, for a total value of \$61/acre or \$2562 of hay saved (at our local prices of ~\$142/ton dry matter).

### Observations:

We observed a peak of 28 AU/Acre/Day based on our available resources, but we quickly reached a point where we were chasing the maturity of the grasses. There was probably ~7-10 days where we could have easily fed twice as many AU, but once the seedheads set in the cows let us know we needed to move them faster and it rapidly declined to ~12AU/Ac/Day.

A 30 day rest period was sufficient for fields grazed down to virtually nothing, but 2-3 weeks would have been preferred on fields where 4-6 inches were left behind. Therefore, this system is not ideally suited to parasite management in sheep/goats as a 28+ day rest on all sections would leave a large portion too mature to re-graze effectively.

Due to our extended cool and dry spring, several neighboring farms didn't have cows out on pasture until after June 1, justifying valuing the dry matter above at the cost of hay, rather than rented pasture.

In addition to the value above, we gained additional value in the stockpiling of quality pasture forages to get us through the drought weather we are currently experiencing (the alternative would've been feeding hay, further justifying the valuation above). See the photo of our perennial pasture grazed once on 4/15 then photo taken at ~46 days of rest and ~22 inches tall based on the broken yardstick in the photo.

Oats seeded on the same farm on 4/21 were in Boot stage on 6/9 with a few seedheads popping out on 6/10. Our conclusion here is overseeding a section with oats in the spring could have extended grazing of quality forages to fill the gap between triticale/WCR and the summer annuals. This could be part of a grazing strategy, weighing costs of seeding versus feeding hay through a gap if no alternative pastures are available.

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July 18, 2021

### Monthly Update on the Summer Annuals:

First, the stats: Stocking density ~28 animal units/acre/day from 32-41 days post-seeding. Total rainfall since planting is in the ~1.3-2" range, with 0.9" coming on day 37.

Observations: We brush-hogged ~15 acres of the first 30 we seeded all together. Growth has been very spotty/inconsistent in the non-mowed sections, and the best growth thus far was in the mowed sections (interestingly, these were the sections where we had the slowest growth of the triticale/winter cereal rye). This seeding didn't see any rain for over 2 weeks after planting. The second seeding was ~10 acres and we didn't mow any of it. This seeding got ~0.4" a few days after seeding, and the growth has been much more consistent than the non-mowed section in the first seeding.

There were pieces of the field that didn't have any cool-season grasses for some reason. Some were on the edges of the CRP where the planter was probably lifted early or lowered late; but some were just random places in the field. These areas were the slowest to germinate in the summer annuals, but they had the most growth/tonnage by ~3 weeks post-seeding.

Additional context:

Seed mix: Albert Lea Seeds SummerMax CC6: Buckwheat 20% + Cowpeas 20% + Soybeans 20% + Proso Millet 15% + Sorghum/Sudangrass 10% + Sunn Hemp 10% + Sunflowers 5%

Like many places, we're having a dry year. We keep watching the rain clouds approach on radar, but they seem to keep splitting around us, so we haven't had much rain on the summer annuals. The first batch was seeded 6/5 and the second on 6/17 (we split the fields to try managing the maturity better than we did on the cool season grasses).

After 32 days, and just under an inch total rainfall on the Annuals, we started grazing the summer annuals because we couldn't stay on the perennial pastures any longer--we'd rather set back the annuals than our perennials. Stocking density has been ~28 animal units per acre over the past 9 days.

On Wednesday (7/14), we were finally blessed with 0.9" rainfall spread out over an entire day. Everything the cows grazed in the 7 days prior rebounded tremendously. The cows had grazed almost everything to the ground, but the sorghum has come back and grown about 3 inches (from nothing visible) in the past 4 days. The growth seems to be much more consistent across the field than what was there previously; we think this may be due to the cows trampling more of the mature cool-season grasses and letting more sun get to the young plants.

Moving forward, we've placed a few squares of our oat/pea baleage out in the field. Our plan is to leave the cows in their current section for at least a few more days to let the non-grazed sections make full use of the rain. The second section is currently 31 days post-seeding, and is ~18 inches tall.

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August 26, 2021

Monthly update on grazing the Summer Annuals:

Carrying Capacity ranged from ~28-35AU/Ac/Day from July-Aug

Est. gross economic value: \$100/Ac (replacing \$220/ton local hay prices)

Like many places, we dealt with very little rain this summer. From the end of May through mid-August we got ~2.4" of rain total. As such, our summer annuals did not perform nearly as well as we had hoped. On the bright side, we planted our fall cover (oats, winter cereal rye, hairy vetch, and tillage radishes) on Sunday, and they've gotten at least 3" of rain in the past 5 days. We're hopeful for the potential of this crop to carry our cows into early-winter after a few weeks of growth.

We waited ~34 days before starting to graze, and we used baleage to slow our rotations as much as possible to try buying time for the plants to get their next bit of rain. Incorporating this baleage made measuring carrying capacity difficult, but prior to adding feed we were getting ~28AU/Ac/Day and even the later paddocks probably didn't exceed 35Au/Ac/Day. This extended rotation also only allowed us to get 1 pass before we needed to seed the fall cover, and tomorrow the cows will come off the field to give the next round of seeds a chance to establish themselves.

The most interesting observation to us was the diverse perennial cool season pasture (2nd year since being converted from row crops) outperformed the summer annuals this summer.

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December 11, 2021

Final Post on our NCR-SARE Grazing Annuals research project:

I will post the link to the official Final Report with all the data and 'lessons learned' in the comments field for anyone who would like to learn more about the specifics of this project, but here's the high-level summary.

Carrying capacity varied significantly, ranging from 3.1 to 35.1 animal units per acre per day. The most extreme variation was observed while grazing the winter biennials, and the majority of days were in the 22-28 Animal Units per Acre per Day carrying capacity range. The cattle harvested approximately 2,167lbs of dry matter per acre over the season. It is important to note, however, that we were in a moderate to severe drought from early May through September (as of Tuesday, we're still 'Abnormally Dry'), which significantly impacted forage production.

Hay savings exceeded seed/planting costs by ~\$21/acre when compared to buying \$140/ton hay, but this does not include labor or land costs. It also does not factor in any value for the fertilizer value of the diverse cover crops, or the soil health benefits of having the livestock grazing on the land, which are more difficult to quantify.

Overall, the project was an interesting experiment and, with a few tweaks (discussed in the Final Report), it could be worth considering incorporating annual forages into a corn/soybeans rotation.

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