

# U.S. Dairy Forage Research Center Annual Field Operations Report January 1996

R.P. Walgenbach - Farm Manager

The 1995 growing season began with very cold and fairly wet conditions in early April. Rainfall recorded at the farm entrance rain gauge in inches were 2.68 in April, 2.73 in May, 1.90 in June, 4.24 in July, 4.58 in August, 1.32 in September and 2.71 in October. The cold spring was followed by hot and dry conditions in June. Very hot temperatures continued in July and August. Temperatures were near or exceeded 90 degrees F on several days and a few days we recorded temperatures of 100°F or higher. Several of these hot days occurred during critical corn pollination times for several fields. A lack of snow cover in late January exposed the alfalfa crop in this region to risk of winter injury, but fortunately moderate air temperatures during this period did not cause much injury to most alfalfa stands. The alfalfa survived the winter season in reasonably good condition with stands similar to those harvested in 1994, but initial spring growth was delayed and slow due to cold temperatures.

This year we planted 96 acres of barley, 212 acres of soybeans, 359 acres of corn, 35 acres of spring seeded alfalfa and 93 acres of summer seeded alfalfa. Barley planting started on 24 April and was completed on 2 May. All barley was no-till planted at 100 pounds per acre into soybean stubble with a John Deere 750 no-till drill. A 31 acre field was surface tilled with an Aer-Way tillage implement prior to seeding barley. Approximately 5,000 gallons per acre of liquid manure were spread on all barley fields. Alfalfa was no-till seeded on 12 May after spraying fields with 2 quarts per acre of roundup. These fields had significant amounts of quackgrass and the cold spring temperatures produced insufficient growth for early treatment with roundup. Varying rates of roundup were sprayed on harvested barley fields followed by no-till seeding of alfalfa from 11 to 16 August at a rate of about 13 pounds per acre. Corn was planted at about 33,000 seeds per acre from 1 to 22 May. About 35 acres were planted following conventional tillage, 105 acres following one pass with dyna drive tillage and 245 acres were planted no-till. Most corn

ground, except autumn killed alfalfa, had about 9,000 gallons per acre of liquid manure. All corn received 100 pounds per acre of 10-20-20 starter fertilizer and 160 pounds per acre of nitrogen from a combination of soybean, alfalfa and manure nitrogen credits and surface applied 28% liquid nitrogen (N) fertilizer. Soybeans were no-till seeded at about 225,000 seeds per acre from 2 to 19 May.

Barley yields averaged 59.5 bushels per acre and ranged from 44.1 bushels per acre for a field of foundation seed barley to 78.4 bushels per acre for malting barley. Soybeans produced an average yield of 59.6 bushels per acre and ranged from 49.7 to 64.9 bushels per acre. Soybean harvest occurred from 29 September to 12 October. The cold soil conditions delayed and prevented emergence of early planted soybeans which contributed to significant stand loss and less than optimal stands. White mold symptoms were evident in all soybean fields; however, with one exception, it was less severe than that observed in 1994. One 39 acre field had several pockets with 40 to 50% severely infected plants.

About 1493 wet tons of corn silage were harvested from 84.5 acres between 6 to 22 September. Yields ranged from 5.6 to 8.0 tons dry matter per acre and averaged 6.5 tons per acre. We harvested 250 acres of high moisture ground ear corn from 9 September to 17 October. The yields, adjusted to a 29% moisture level, ranged from 3.6 to 5.4 tons per acre and averaged 5.0 tons per acre. The shelled corn yield equivalent for 5.0 tons per acre of high moisture ground ear corn at 29% moisture is approximately 138 bushels per acre. Twenty-four acres of corn harvested as dry shelled corn yielded 153.4 bushels per acre. The dry conditions during June, excessive heat throughout much of the summer, and the worst corn borer infestation in Wisconsin history decreased yield expectations, especially following the record yields from the 1994 season. The harvested alfalfa from established fields yielded an average of 4.24 tons dry

matter per acre and ranged from 3.2 to 5.4 tons dry matter per acre. The cold spring delayed regrowth initiation and slowed subsequent growth and caused reduced first harvest yields. The second crop yields suffered from lack of moisture and the summer heat affected both second and third crops. A field of Marathon red clover harvested on 19 June, 25 July and 31 August produced 5.1 tons dry matter per acre. The spring and early summer growth benefited from cool temperatures and produced a first crop yield of 2.8 tons dry matter per acre.

Two fields were grid-mapped and soil sampled using Global Positioning System (GPS) technology this spring. A local cooperative spread lime at a variable rate on one field this autumn. We plan to explore cautiously this emerging technology to ensure that our investment in this technology is practical and profitable.

The conversion of the gate opening signal from microwave transmission to telephone line transmission was completed in early spring. This has improved the operation and reliability of the automated gate; however, we continue to have problems with the system. The modems communicating between computers at the gate 8 entrance and the manned

station at gate one have been very susceptible to lightning strikes and electrical surges. We have been working with Wisconsin Power and Light and personnel at Badger Army Ammunition Plant to resolve this problem.

The Center purchased a John Deere Model 9500 combine, a New Holland Model 2450 self-propelled mower/conditioner and a used Owatonna stack maker. With the equipment purchases planned for 1996, we should complete the majority of our equipment purchases to replace previously leased equipment. The Center also added a 32 X 124 foot bunker silo and increased the size of an existing bunker to 32 X 124 feet. This expansion is needed to provide additional feed for the herd expansion and to give us a modest carryover of feed in surplus crop years.

Again this past season we have had several construction projects and disruptions and the usual but unanticipated breakdowns that cause frustrations and changes in operations. I appreciate the cooperation and diligence of our employees in working with these situations. I thank all of them for their past and continued efforts toward accomplishing our research objectives.