

# Important findings and recommendations from TBARS Thunder Bay

*Dr. Tarlok Singh Sahota CCA*

This year, we not only analysed research data from 2015, but also did pooled analysis of the data from experiments that completed 2-3 years. Main findings/and recommendations are as follows:

## 1 Crop Varieties:

### 1.1 Based on average over three years:

- **Western spring wheat:** Grain yields were in the order of *AAC Innova* (5,507 kg/ha)  $\geq$  *HY1312* (5,472 kg/ha)  $>$  *AAC Proclaim* (5,131 kg/ha). *Sable* grain yield was 4,618 kg/ha. *AAC Innova* produced the highest straw (7,543 kg/ha; 1 MT/ha higher than that from *Sable*). Producers may consider adding these three new varieties, especially *AAC Innova*, to their cropping systems.
- **Ontario winter wheat:** Highest grain yield (6,016 kg/ha) was recorded with *Keldin*. *AC Morley* maintained its top position in straw yield (6,386 kg/ha); though *Keldin* was equally good at 6,325 kg/ha.
- **Manitoba winter wheat:** Three top grain yielding varieties were *Swainson* (7,584 kg/ha), *Moats* (6,759 kg/ha) and *AAC Gateway* (6,572 kg/ha). Straw yields were in the order of *AAC Gateway* (9,152 kg/ha)  $>$  *Swainson* (8,795 kg/ha)/and *Moats* (8,754 kg/ha).
- **Winter rye:** *Guttino* (8,973 kg/ha), *KWS H-119* (8,950 kg/ha) and *Hazlet* (8,809 kg/ha) produced highest grain yields. Straw yields were highest with *Hazlet* (9,300 kg/ha), *Prima* (9,140 kg/ha) and *Guttino* (8,973 kg/ha). *Winter rye* could be a good option for grain (feed or malt)/and straw production!

### 1.2 Based on average over two years:

- **Malting barley:** Three top grain yielding varieties were *AAC Synergy* (6,438 kg/ha), *Bentley* (6,406 kg/ha) and *CDC Copeland* (6,248 kg/ha). Straw yields were in the order of *CDC Copeland* (6,300 kg/ha)  $>$  *Bentley* (5,934 kg/ha) = *AAC Synergy* (5,930 kg/ha).
- **Flax:** *CDC Glas* (last year's top yielder) and *Lightning* recorded the highest seed yield (3,450 kg/ha). *CDC Sorrel* registered the highest straw yield (7,712 kg/ha).
- **Alfalfa:** *GS-13-06 M* recorded the highest dry matter yield (5,632 kg/ha).
- **Red Clover:** *Belle* gave  $\sim$ 0.5 MT/ha higher dry matter yield than *GS-11-02*.

## 2 Fertilizer Management Practices:

### 2.1 Based on average over three years:

- **Grasses mixture** - Timothy (Itasca) 50 %, Bromegrass (Peak) 42.5 %, and Orchard grass (Dividend VL) 7.5 %: Highest dry matter yield was obtained with the blend of urea, ESN and ammonium sulphate @ 140 kg N/ha, which was 1,420 kg/ha higher than that with urea @ 105 kg/ha and 860 kg/ha more than that from urea @ 140 kg N/ha. This meant two dollars return for each dollar invested in extra cost of N from urea, ESN and ammonium sulphate blend @ 140 kg N/ha as compared to urea @ 105 kg/ha! Highest protein content (18 %) in the first cut was recorded with urea @ 105 kg/ha + ESN @ 35 kg/ha.

- **Barley for silage:** At the same rates of N application, maximum forage barley dry matter yield (6,914 kg/ha) was recorded with a blend of three N fertilizers; urea @ 40 kg N/ha, ESN @ 20 kg N/ha and ammonium sulphate @ 10 kg N/ha.
- **Winter Cereals for forage:** There was no significant difference between dry matter yields of the 3 winter cereals (wheat 2,562 kg/ha, rye 2,726 kg/ha and triticale 2,453 kg/ha). Replacing 25 % N from urea with ESN appeared to improve forage yields of winter wheat and triticale, but not of rye. Averaged over crops and years, dry matter yield registered a linear increase with increasing rates of N from 0 to 100 kg/ha and exhibited a diminishing trend thereafter. The protein content however continued to increase from 0 (13.0 %) to 150 kg N/ha (16.3 %).
- **MasterGraze Corn/Sorghum Sudangrass:** (i) 150 kg N/ha was optimum for MasterGraze corn, (ii) at the same rate of N, Sorghum Sudangrass gave 500 kg/ha higher dry matter yield than corn, (iii) urea + ESN (3:1 on N basis) had ~500 kg/ha yield advantage as compared to urea alone, and (iv) the two crops produced 8,400-8,600 kg/ha dry matter yield in ~80 days.

## 2.2 Based on average over two years:

- **Fall vs. spring application of N for spring wheat:** Grain yield was highest (4,813 kg/ha) when urea and ESN were applied in the fall each @ 40 kg N/ha (80 kg N/ha in total). This was ~450 kg/ha higher than fall application of urea @ 80 kg N/ha and 105 kg/ha higher than the spring applied urea @ 80 kg N/ha. ESN improved grain protein content.

*These findings indicate that it is advisable to apply N from a blend of 2-3 N fertilizers than from urea alone!* For details/and additional information, please refer to the TBARS Annual Report 2015!

*Published in Northwest Link, December 2015/January 2016, Pages 7-8!*