Quality forages with sudan, sorghum and pearl millet

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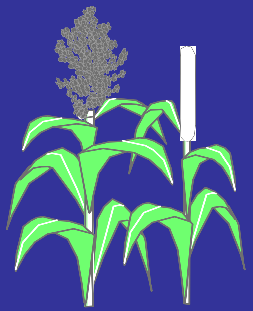

Agriculture Environmental Renewal Canada (AERC) Inc.

AERC Inc.

- Agriculture Environment Renewal Canada Inc. is a private seed company with a mandate for research and development on *environmentally-friendly* crop diversification opportunities
- Its principal focus is on pearl millet and sorghum, for use as forage, feed grain, food grain and bio-ethanol
- AERC Inc. ensures that its technologies and products contribute to protection of the environment and the natural resource base
- AERC's has collaborative agreements with AAFC, OMAF, MAPAQ and Universities of Guelph, Laval and McGill for testing its products.
- In the last sixteen years AERC developed and commercially made available eight products for different end uses to farmers

Collaborative Research with Federal, Private and Provincial Agencies has been very valuable and successful

• Multi-location testing	AAFC, MAPAQ
• Agronomic recommendations	AAFC, MAPAQ, OMAF, Laval University and farmers
• Herbicide recommendations	MAPAQ, OMAF, Laval University and Private sector
• Forage and grain Quality	AAFC, Univ. of Guelph, Private lab.
• Animal feeding trials	Univ. of Guelph, McGill Univ.
• Development of SSM	NRC/IRAP and CAI Inc.
• Co-promotion of products	Website, AAFC, MAPAQ and OMAF publications, and joint field days
• Co-promotion of products	Website of Univ. of Colardo and P.A.U,India

Milo Pro Inc.

- Milo Pro Inc. is a marketing `arm’ of AERC Inc. Milo Pro Inc.’s focus is on increasing marketing opportunities for these products and provide feedback to R&D team of AERC Inc.

- Milo Pro Inc.’s activities are not only limited to Canada but also expanded its activities to the USA, China, Vietnam, Indonesia, France, Sudan, Nepal and India.

- AERC and Milo Pro Inc. work cooperatively to identify suitable `niches’ for these crops and enhance alternative cropping strategies for farmers that contribute to animal (dairy, beef cattle and swine) and poultry industries.

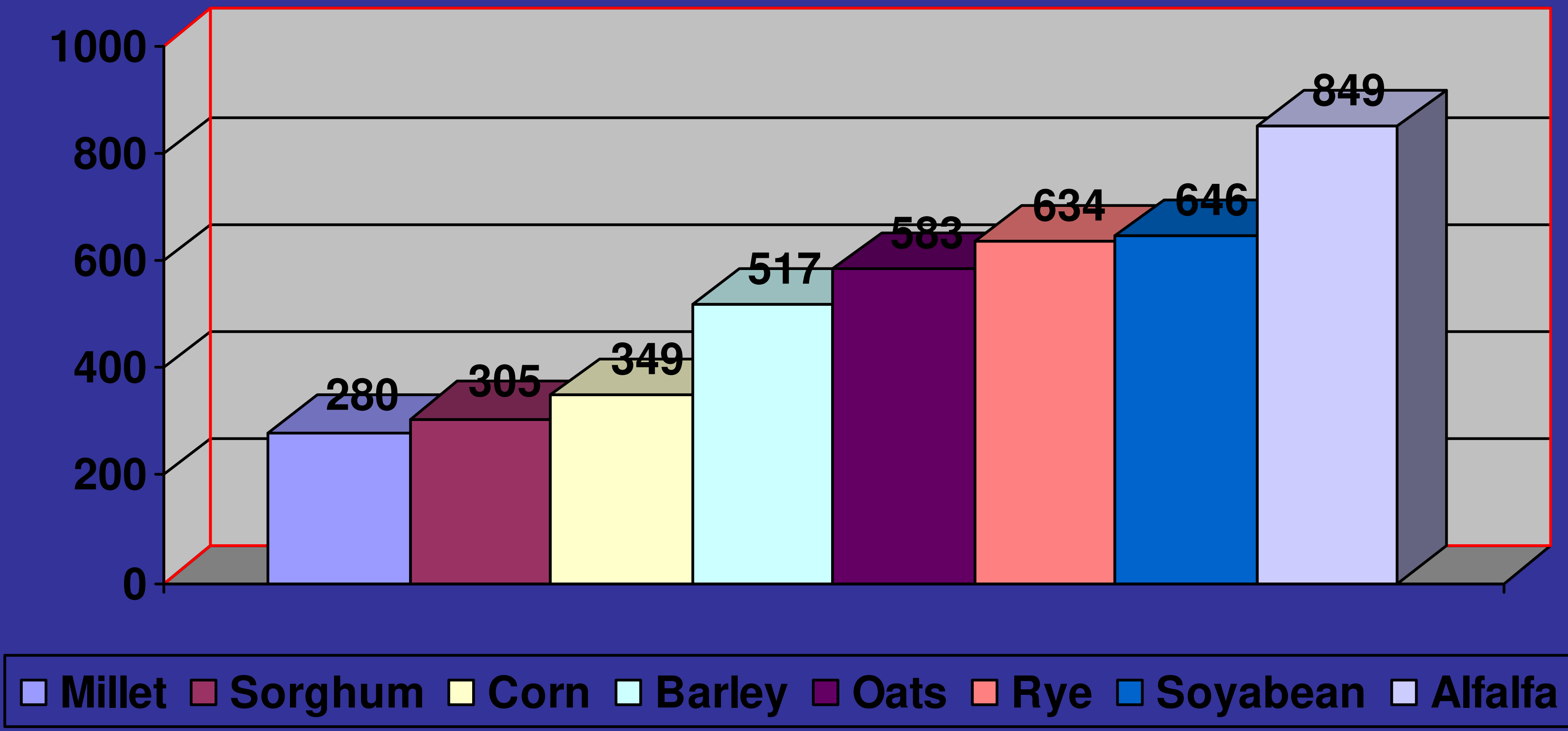

Fig.1: Water requirement of common crops in Quebec (Litre/ kg of dry matter)
(Source: Colloquium on the water conservation in Agriculture, CPVO, 1990)


AERC inc.
Agriculture
Environmental
Renewal
Canada Inc.
SORGHUM AND
PEARL MILLET GRAIN
RESEARCH PROGRAM

Achievements - Products

- **Forage Sudan**

CFSH 30 as mono crop

CFSH 30 with alfalfa


07/06/2005


07/11/2005

Achievements - Products

- **Forage Sudan Hybrids**

Fodder yield and quality in sandy soils of Ontario

Hybrid/ Components	CFSH 30 (multicut)	CFSH 30 + Alfalfa	Alfalfa + grasses
DMY (%)	23.6	43.5	43.62
C.P. (% dm)	15.71	17.1	18.00
ADF (% dm)	28.47	31.4	34.02
NDF (% dm)	56.32	49.3	49.90
IVDMD (% dm)	84.70	-	-
Ca (% dm)	0.44	1.06	1.03
P (% dm)	0.38	0.32	0.32
K (% dm)	2.13	2.56	2.57
	-	56.2	61.1

Forage Pearl Millet Hybrid Trials AAFC, Delhi, Ontario

Canadian Forage Pearl millet -101

- **Multiple uses: Pasture, green chop, silage, hay**
- **Helps build organic matter: Adds 44 Kg N, 13 kg P and 63 Kg K per acre *vs.* 28 N, 4.5 P and 32 K by Rye**
- **As a rotation crop controls root lesion nematodes (*Pratylechus penetrans*) in tobacco, potato, strawberry carrot.**
- **Cost of Rye + fumigation + tobacco $ 883 /ha vs. Millet + tobacco $ 603/ha. Average extra returns $ 1200/ha.**

Canadian Forage Pearl Millet (CFPM) -101

- Adapted to sandy soils
- First cut 55-65 days after planting, second cut 30-40 days later
- High forage yield – 5 to 12 t ha^{-1} of dry matter
- Rich in crude protein (16% to 18%)
- Excellent regeneration capacity
- Does not contain prussic acid

Achievements - Products

- **Forage pearl millet (CFPM 101)**


18. 7. 2001

Crop Management for forages (Multi-cut)

Field preperation	Cultivate the land properly prior to planting so that it is free from grass weeds
Planting date	Plant any time when soil temperature is above 12^0C.
Spacing	Between rows 7 inches and 2 to 3 inches apart within the row.

Crop Management for forages (Multi-cut)

Planting	Seed rate
CFSH 30 CFPM 101	12 lbs/acres, (population 325, 000 plants/acre) 10 lbs/acres, (population 425, 000 plants/acre)
Planting depth	Plant shallow at 0.5 inch. On sandy soils, seed should be planted at 1.0 inch
Planting equipment	Use a grain drill with a grass box or conventional grain drill. Broad casting of seeds results in uneven stand. Use 80 % of chart opening for CFSH 30 and CFPM 101 because the seed is smaller than other sorghum hybrids

Crop Management for forages (Multi-cut)

Fertilizer	Use 70% of silage corn manure per acre at planting.
Soil pH	Optimum soil pH 5.5 – 8.5.
Weed control	Cultivation prior to planting

Crop Management for forages (Multi-cut)

Harvesting	Ready at 45 to 50 days after planting. Optimum forage quality at boot stage ie: CFSH 30 and CFPM 101 is 3 feet tall. Schedule the 2nd cut 30 days after.
Harvest height	Leave 4 to 6 inches of stubble for faster re–growth.
Harvest moisture	65 % moisture for silage; 40% for haylage in plastic bagging; 14% for bale.
Forage Yield and Quality	Forage dry matter yield 10 -14 T/ha (from all cuts). Forage quality (in % dm) was 14-16% CP, 28 -32% ADF, 56-59 % NDF and 66-70% TDN and NEL of 1.3- 1.4 (Mcal/kg) across Canada.

Crop Management for forages (Multi-cut)

Prussic acid	CFSH 30 has low levels of prussic acid at all the time (after a frost or drought ranged 1.0 to 9.0 ppm %dm). Prussic acid level of less than 250 ppm is safe to use as feed
Forage	Silage, green chop and hay
Nématodes control	CFPM 101 a rotation crop controls root lesion nematodes (*Pratylechus penetrans*) in tobacco, potato, strawberry and carrot.