

Comparison of North American Alfalfa Varieties Productivity in Poland

Z. Staszewski and Z. Bodzon

**Institute of Plant Breeding and Acclimatization, IHAR, Radzików, 05-870 Blonie,
Poland, E-mail: z.staszewski@ihar.edu.pl**

Dry matter yields (DMY) of 15 American alfalfa (*Medicago sativa* L.) cultivars and new bred strains were studied in the field experiments applying randomized block design, 4 replications, 10 m² plots, 600-seeds per 1 m². The experiments were carried out in four experimental stations: Borowo (Western Poland), Bartazek (Northern Poland), Sandomierz (Southern Poland) and Radzikow (Central Poland). Radzikow lays near the geographical center of Europe (52°10'N, 20°50'E). The other experimental stations are distant 200-300 km to Radzikow. The climate of Poland in many points resembles central Minnesota or Wisconsin being more fluctuate because of temporary influences of Atlantic (West wind) or Siberia (East wind). January temperature is -2.5° (coolest month) and September 17.7° (warmest month), an average precipitation is 500-600 mm annually. Two cuts were taken in 1997 (the year of installation) and four in the each of following years. Many varieties were good yielders, winterhardy and resistant to fungal diseases. Experimental data were used to submit the varieties no. 12, 14 and 18 for the Polish state official registration list.

Table: Total dry matter yield (DMY) consisted of 10-cuts harvested during 1997-99y.

| Varieties number and name | | Dry matter yield (DMY) - 3 yr period | | | | | |
|-----------------------------------|-------------------|--------------------------------------|--------|--|----------|----------|------------|
| | | Total | | % of standard variety (Kometa MT = 100%) in four experimental stations | | | |
| | | MT / ha | in % | Borowo | Radzików | Bartazek | Sandomierz |
| 1. FG 97-1 | (Forage Res.) | 38.34 | 106.60 | 108.53 | 105.53 | 107.77 | 95.63 |
| 2. FG 97-2 | (Forage Res.) | 38.11 | 103.98 | 102.03 | 103.70 | 104.57 | 101.40 |
| 3. FG97-7 | (Forage Res.) | 38.21 | 104.25 | 103.57 | 103.53 | 106.17 | 100.13 |
| 4. Magnum III | (Dairyland) | 37.35 | 101.90 | 105.60 | 100.80 | 103.33 | 98.13 |
| 5. Magnum IV | (Dairyland) | 37.94 | 103.51 | 104.57 | 106.80 | 98.77 | 107.10 |
| 6. Magnum III Vet | (Dairyland) | 37.29 | 101.74 | 99.23 | 97.43 | 93.47 | 113.70 |
| 7. Alpine II | (Peterson) | 37.91 | 103.43 | 104.43 | 103.67 | 98.87 | 104.90 |
| 8. Treasure | (F. Clark) | 37.60 | 102.58 | 103.87 | 103.77 | 100.63 | 101.53 |
| 9. Vernal | (Public) | 33.57 | 91.59 | 93.57 | 97.60 | 89.43 | 89.73 |
| 10. Radius | (IHAR) | 37.86 | 103.29 | 102.83 | 99.43 | 103.37 | 102.20 |
| 11. ACW-PO3 | (CAL-WEST) | 36.89 | 100.65 | 106.07 | 101.00 | 98.63 | 98.37 |
| 12. 92-28 | (W-L Res.) | 39.42 | 107.55 | 107.87 | 106.20 | 109.17 | 106.83 |
| 13. 92-132 | (W-L Res.) | 38.22 | 104.28 | 107.27 | 100.37 | 112.97 | 98.00 |
| 14. 93-39 | (W-L Res.) | 37.93 | 103.48 | 103.83 | 100.77 | 111.83 | 98.37 |
| 15. 93-110 | (W-L Res.) | 37.81 | 103.16 | 103.00 | 100.60 | 106.33 | 101.33 |
| 16. Stampede | (Peterson) | 39.43 | 107.58 | 106.67 | 108.97 | 108.80 | 105.50 |
| 17. Barallix (Barenbrug Res. FR.) | | 37.47 | 102.23 | 101.40 | 99.57 | 106.40 | 100.80 |
| 18. Ulstar (RAH-100) | (Ulstar PL.) | 38.56 | 105.20 | 106.87 | 98.17 | 116.67 | 100.33 |
| 19. Kometa | (Polish standard) | 36.65 | 100.00 | 31.64 | 43.52 | 31.97 | 39.48 |
| Mean | | 37.71 | --- | --- | --- | --- | --- |
| LSD 0.05 | | 1.10 | --- | --- | --- | --- | --- |

Acknowledgements: The sponsorship to the project of USDA, Washington DC., American Seed Grv. Association and IHAR-Institute as well as the important personal contributions of Mr. Lindell Whitelock-Resident Advisor, Mr. Fred Clark, Prof. Dan Undersander Univ. of Wisc. have been highly appreciated.