PROJECT TITLE: Winter and spring wheat variety performance evaluation under northern Montana conditions on the basis of production value as influenced by protein.

PERSONNEL:

Project Leader: Gregg R. Carlson - Havre - Agronomist

Cooperators: Jim Christianson - Great Falls - MWBC
Mark Schutt - Great Falls - MWBC
G. A. Taylor - Bozeman - Breeder (WW)
L. E. Talbert - Bozeman - Geneticist (SW)
Individual Cooperating Landowners

OBJECTIVES:

It is the objective of this project to bring quality and quantity together to allow the forces of market value to influence evaluation of winter and spring wheat varieties under varying cropping conditions in northern Montana.

SUMMARY:

Producers are well aware of the impact protein premiums can have on overall market value. 'Winning with quality' or 'losing without it' becomes a game of timing which is not always an unlimited option to the average producer.

Producers have asked researchers to put recommended practices into dollars and cents. Such is never easy; and this effort toward quantifying wheat variety performance on the basis of total dollar return is no exception.

The Research Center initiated development of a total dollar return database in 1988. Carlson had yield and protein performance data by year back to 1982 for numerous locations throughout northern Montana. A system needed to be developed to marry historic price information to corresponding agronomic performance for overall evaluation. Upon advice sought from Jim Christianson of the Montana Wheat and Barley Committee it was determined that market price values used for evaluating a given actual yield and corresponding protein level for varieties in given data years needed to be based on average annual prices. The Committee had the price information needed, but it was in the form of some 12,000 individual pencil entries for seven years from 1982-1987. A computerized database was needed to include the some 38,000 values involved when protein premiums by quarter were considered. As the Committee was already in the initial phases of computerizing the database, the research center prepared a temporary computer database for pilot use early in 1988

utilizing only Wednesday markets toward calculating annual averages. Portland values were used to eliminate confusing variability associated with freight rates at different points of origin. The 'average of Wednesdays' database was used in 1988 to prepare some preliminary graphics featuring 1982-1987 data for producer reviews.

By December, 1988 Mark Schutt, Information Officer for MWEC had developed a spreadsheet program utility affording much more efficient computerization of market data. Thus, daily market spreadsheets are now being prepared for all years available. By the time this report was prepared, the years 1980-1989 had been made available to the research center. Thus, the present analyses feature annual market values per year based on daily market quotes for all years reported.

For these location analyses, an average market value per acre by actual yield at ordinary protein was calculated for each entry along with added market value for protein premium, if any. The sum of the two values then represents the gross return per acre. The values were tested via simple analysis of variance with data years as replications.

It should be noted that the current procedure affords no mechanism for adjustment of gross return where protein content is below that for ordinary (10 percent winter, 13 percent spring); or above that for 13 percent winter and 15 percent spring. Thus, discount for protein below ordinary or above premium for protein above normal quote maximums cannot be reflected in these data.

RESULTS:

Preliminary results are shown graphically in Figures 1-10 representing the following location data:

Fig.	Crop	Location	# Varieties	# Years
1	Flw-WW	Havre	6	7
*1a	Flw-WW	Havre	6	6
2	Flw-WW	Big Sandy	6	7
*2a	Flw-WW	Big Sandy	7	6
3	Flw-SW	Havre	5	8
*3a	Flw-SW	Havre	6	5
4	Flw-SW	North Havre	5	7
*4a	Flw-SW	North Havre	6	3
5	Rcp-SW	North Havre	5	5
6	Flw-SW	Turner	5	7
*6a	Flw-SW	Turner	6	3
7	Flw-SW	North Dodson	5	6
*7a	Flw-SW	North Dodson	6	3

*Denotes graphs representing a reduced number of years for purposes of including pertinent new releases for which data does not exist for all years since 1982.

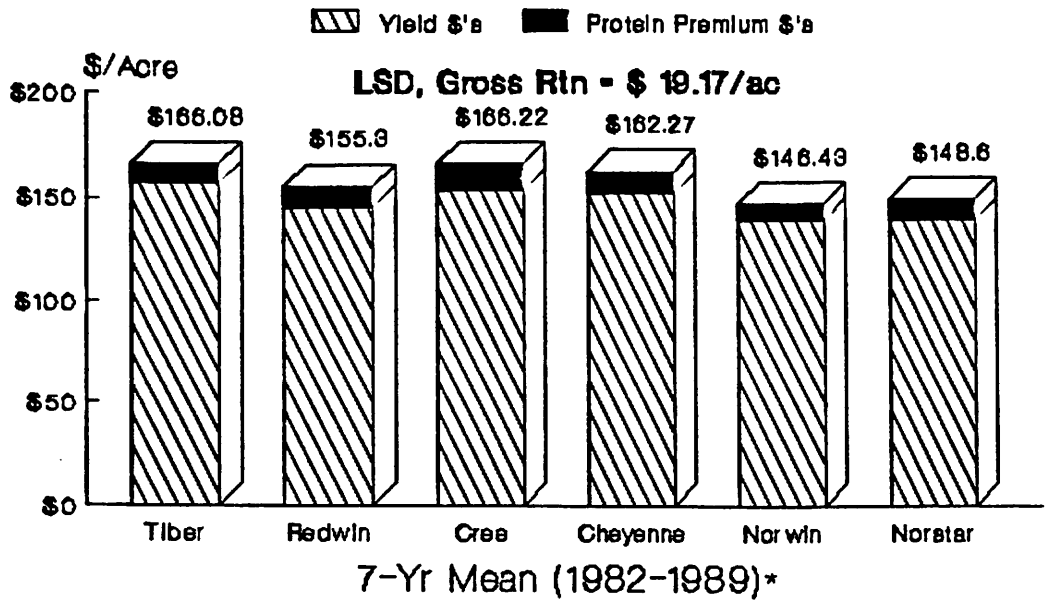
The Research Center would appreciate any comments on this approach to wheat variety performance evaluation. It must be kept in mind that nitrogen fertility can dramatically affect such results. Soil nutrient information is available for these data (applied N, P, K for 1982-1985, and soil nutrient analysis plus applied N, P, K for 1986-1989). All Havre data represents a minimum 'applied nitrogen' rate of 70 pounds N. Management can further affect overall crop yield and quality performance; and shrewd marketing skills will not limit the progressive manager to average annual market values.

FUTURE PLANS:

The Research Center plans to continue work with MWBC and wheat breeders in further developing and refining the use of these data with agricultural producers. Regression or other more sophisticated means of anlysis needs to be introduced in work with these data.

Figure 1.

Gross Return - Fallow Winter Wheat
($ Yield at 10 % Protein + Premium)
Northern Ag Research Center, Havre

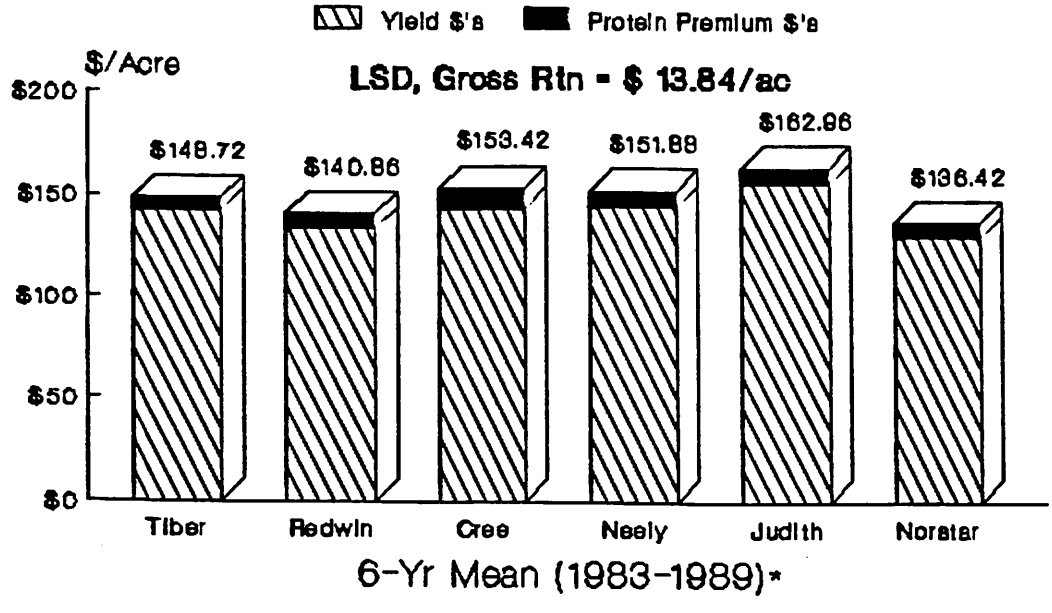


*1986 Nursery Lost to Drought Conditions
Basis = Ave. Annual Mkt., Portland Deliv

MSU/AES/NARC-Havre

Figure 1a.

Gross Return - Fallow Winter Wheat
($ Yield at 10 % Protein + Premium)
Northern Ag Research Center, Havre

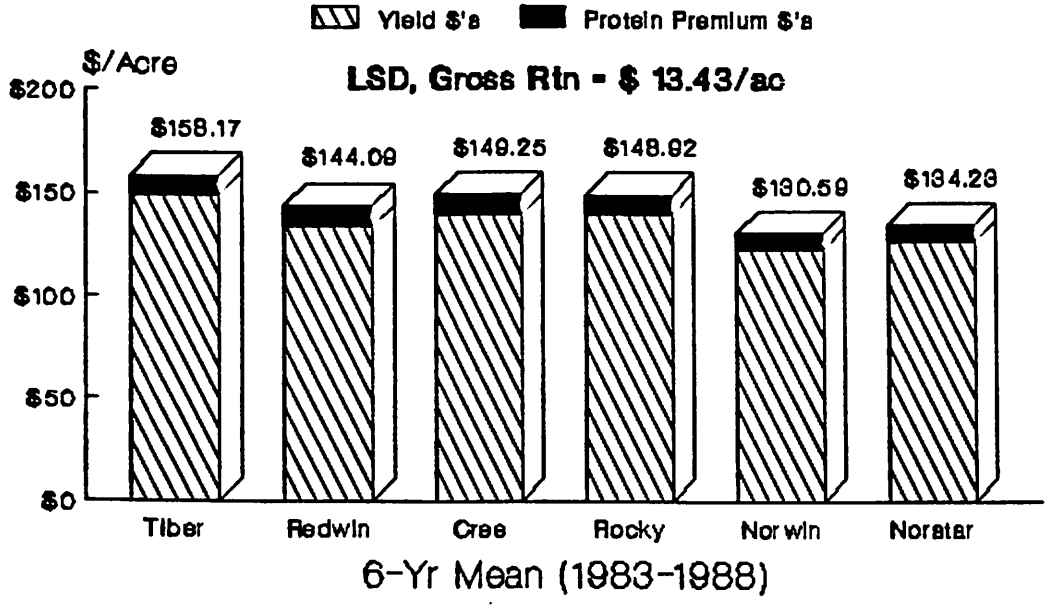


*1986 Nursery Lost to Drought Conditions
Basis = Ave. Annual Mkt., Portland Deliv

MSU/AES/NARC-Havre

Figure 2.

Gross Return - Fallow Winter Wheat
($ Yield at 10 % Protein + Premium)
Myers Farms Inc., Big Sandy

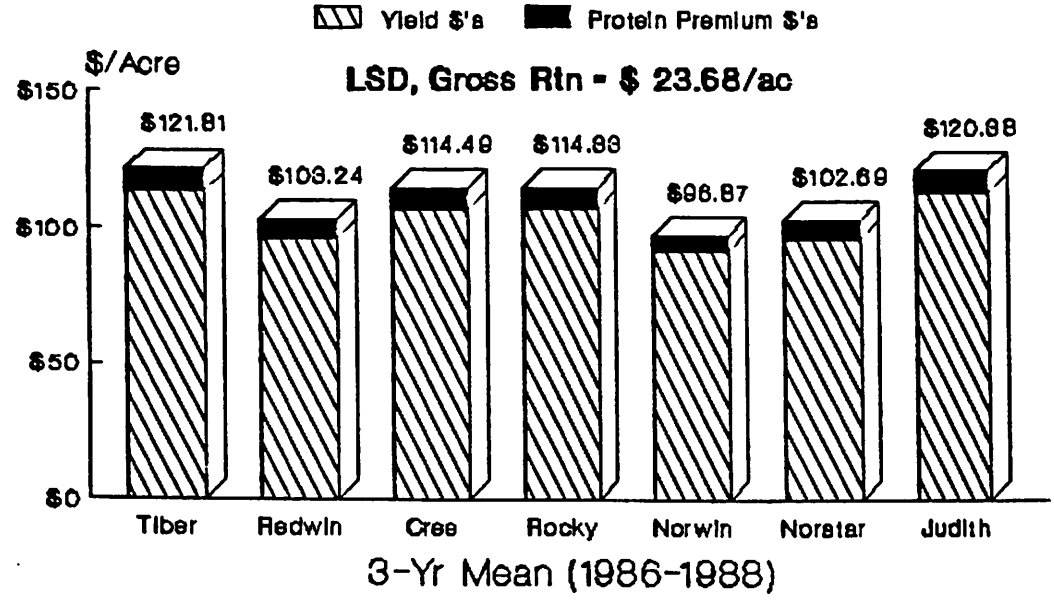


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 2a.

Gross Return - Fallow Winter Wheat
($ Yield at 10 % Protein + Premium)
Myers Farms Inc., Big Sandy

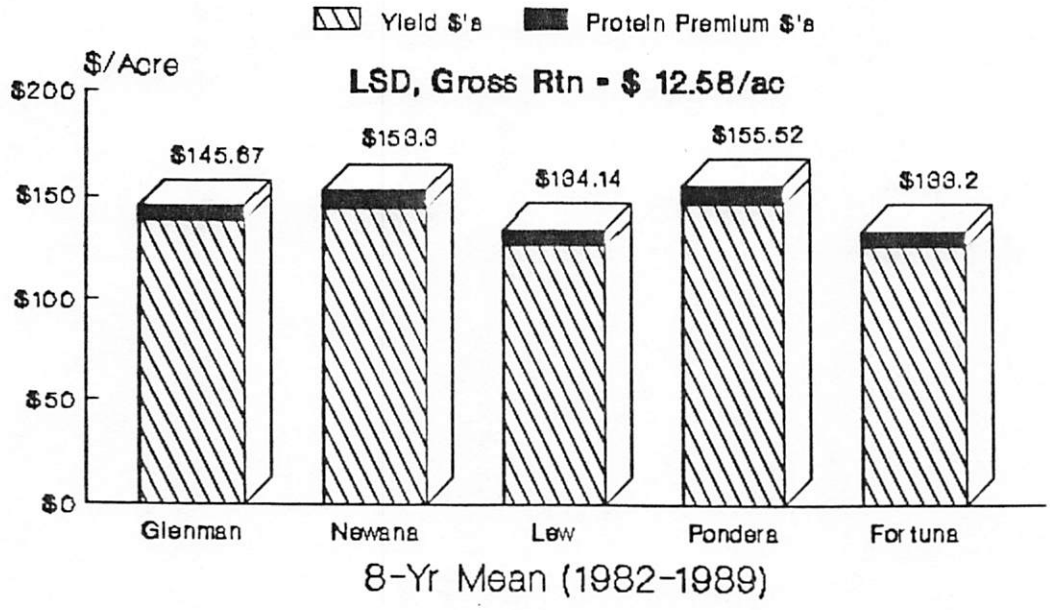


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 3.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Northern Ag Research Center, Havre

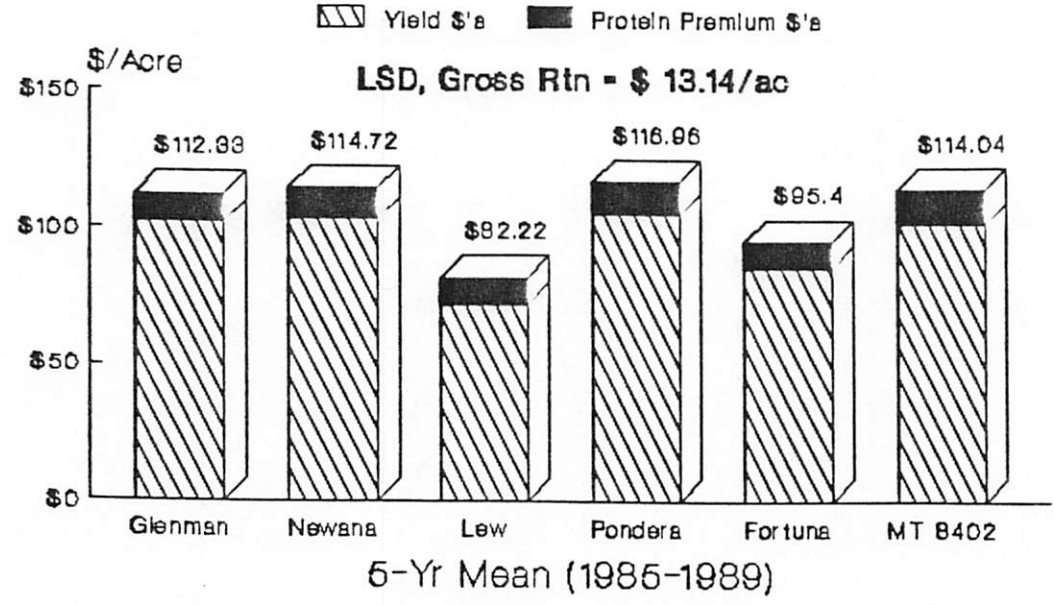


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 3a.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Northern Ag Research Center, Havre

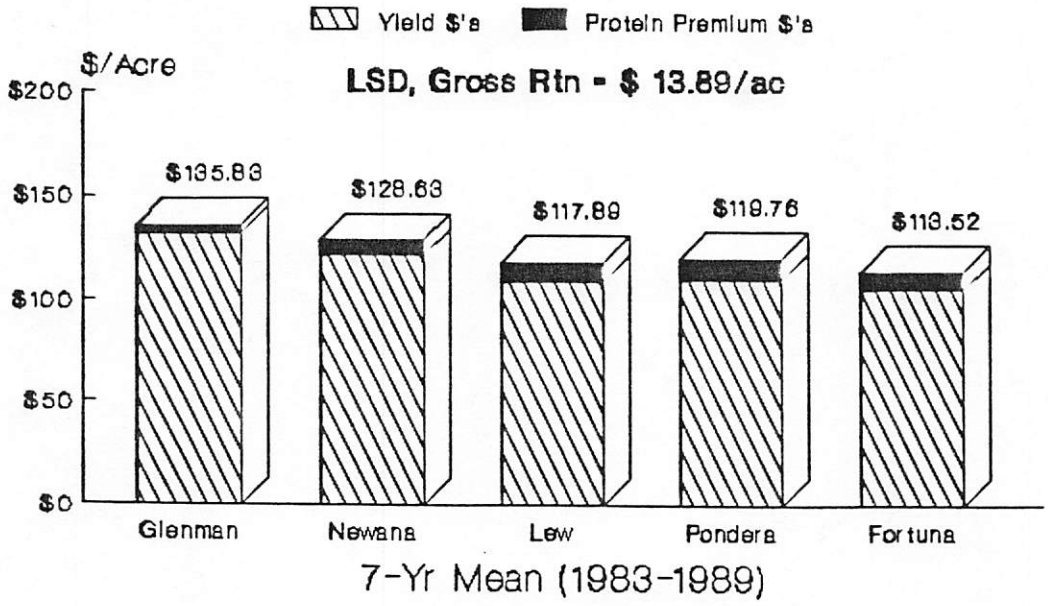


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 4.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Mark & Nancy Peterson Farm, North Havre

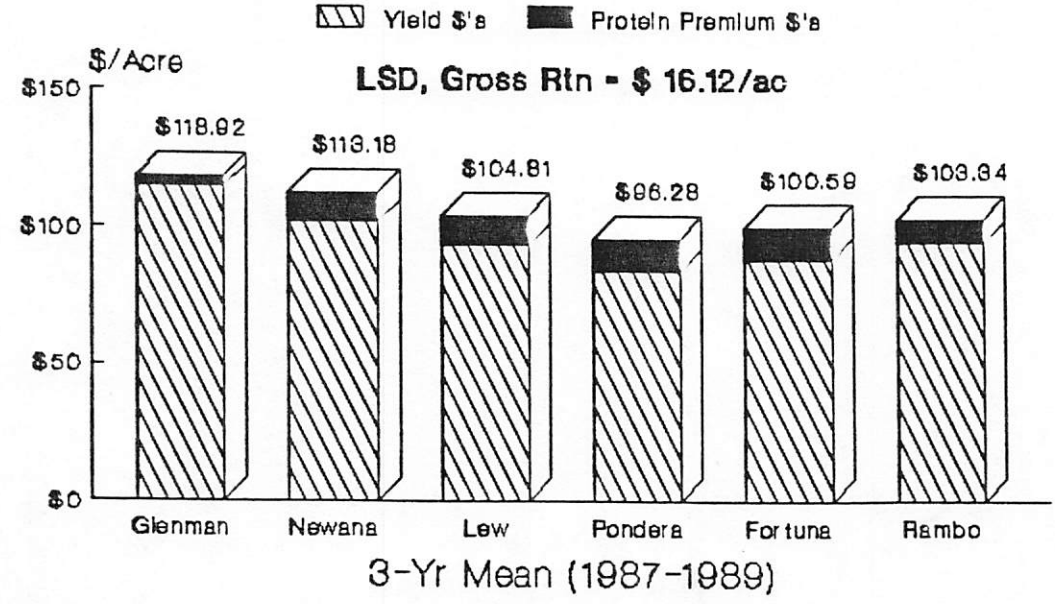


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 4a.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Mark & Nancy Peterson Farm, North Havre



MSU/AES/NARC-Havre

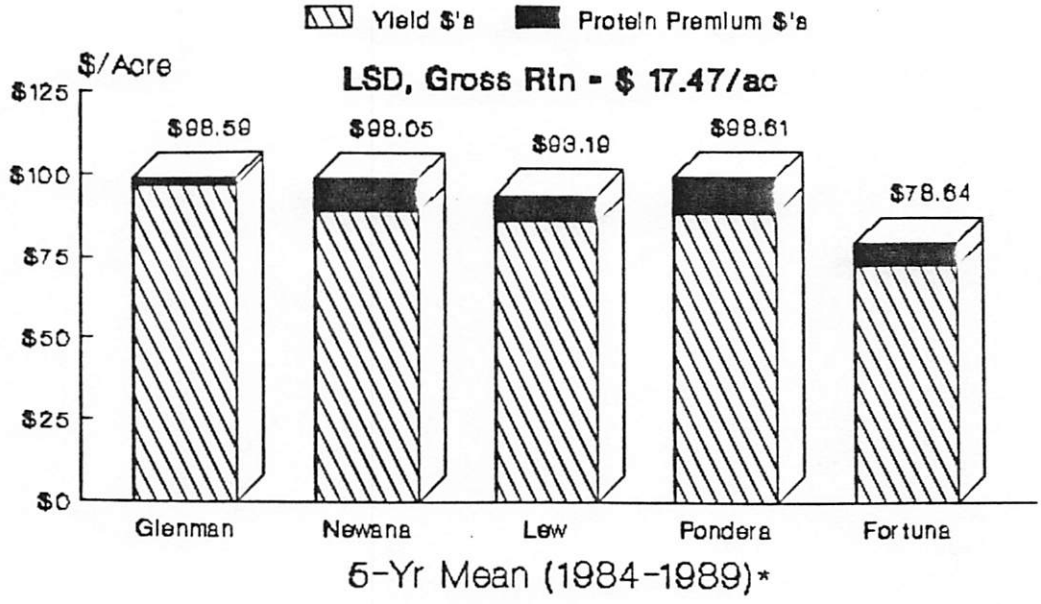
Basis = Ave. Annual Mkt., Portland Deliv

Figure 5.

Gross Return - Recrop Spring Wheat

($ Yield at 13 % Protein + Premium)

Mark & Nancy Peterson Farm, North Havre



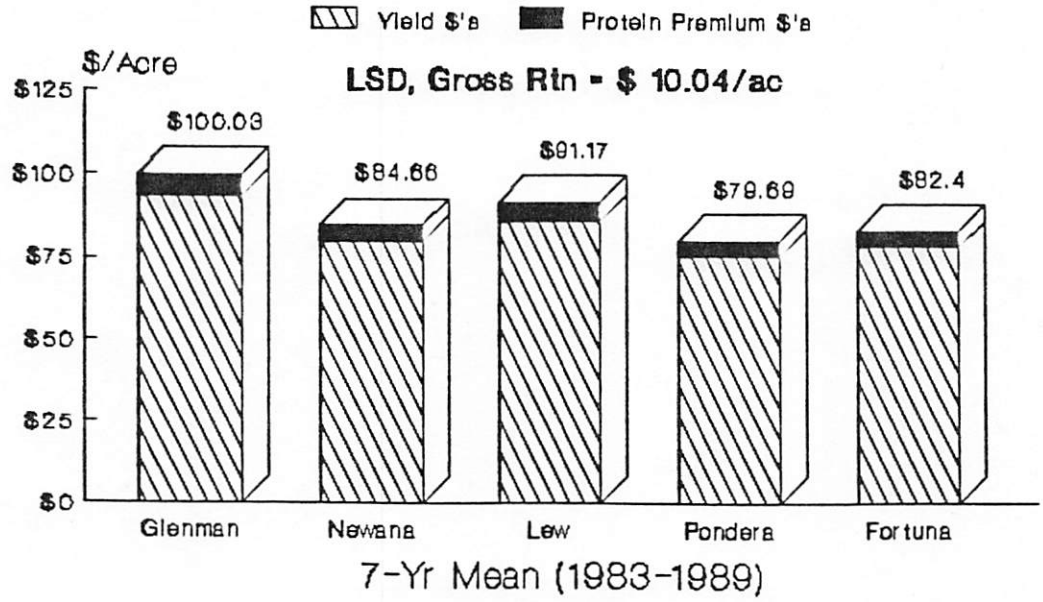
5-Yr Mean (1984-1989)*

*1988 Nursery Lost to Drought
Basis = Ave. Annual Mkt., Portland Delly

MSU/AES/NARC-Havre

Figure 6.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Leon Cederberg Farm, Turner

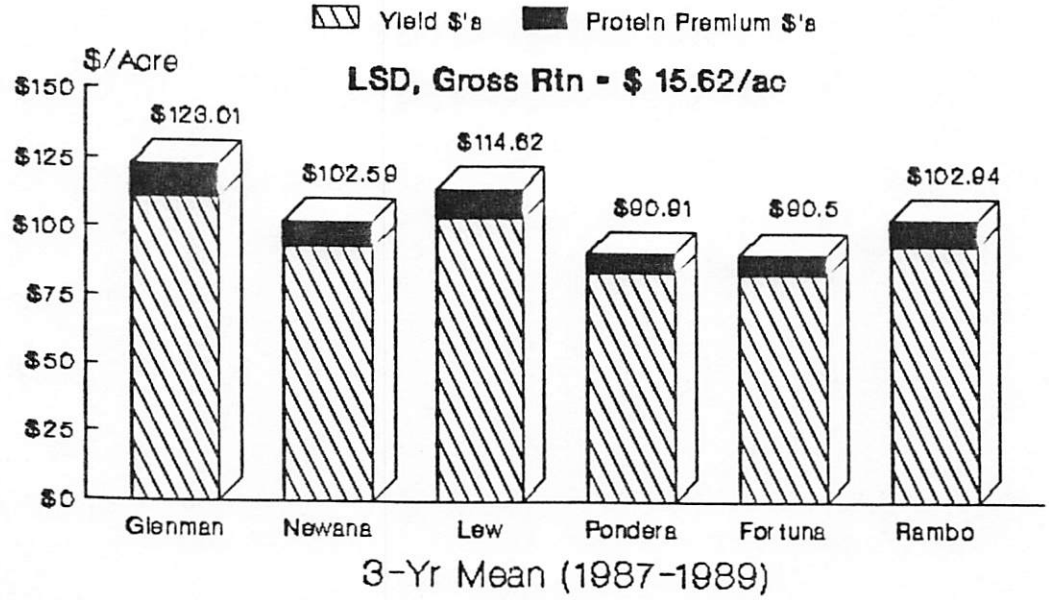


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 6a.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Leon Cederberg Farm, Turner

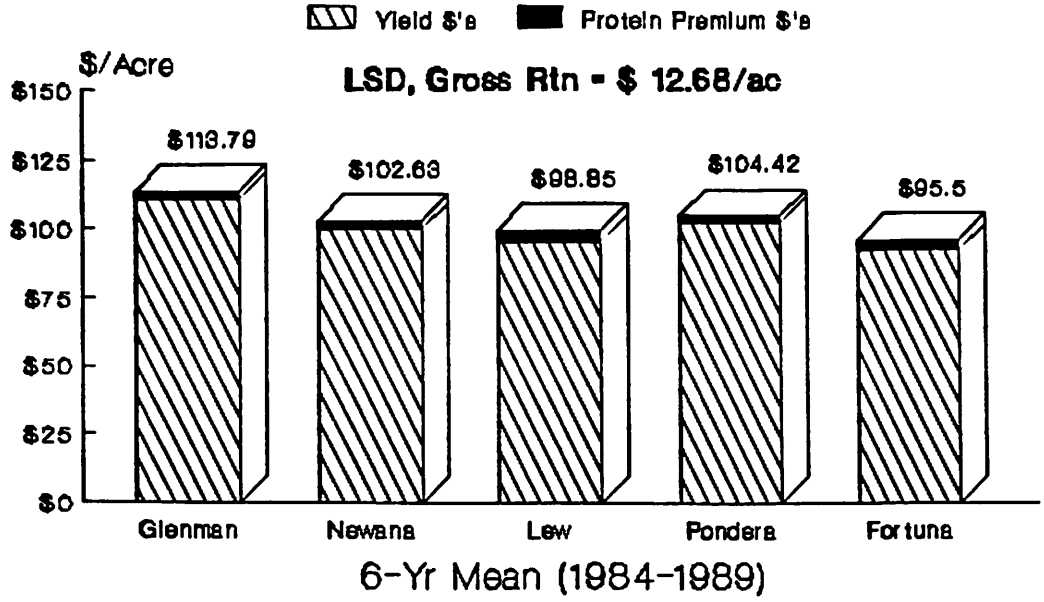


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 7.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Harold Solberg Farm, North Dodson

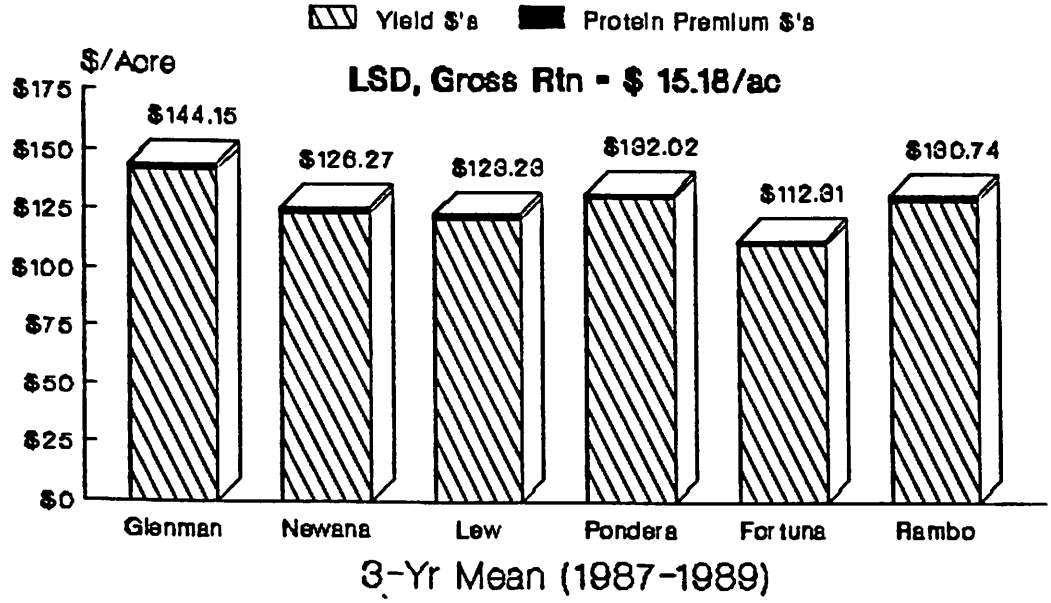


MSU/AES/NARC-Havre

Basis = Ave. Annual Mkt., Portland Deliv

Figure 7a.

Gross Return - Fallow Spring Wheat
($ Yield at 13 % Protein + Premium)
Harold Solberg Farm, North Dodson



MSU/AES/NARC-Havre

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