pressures is heritable. The African and Caliverde varieties showed the least decrease whereas the Buffalo, Vernal, and Ranger varieties showed the greatest decrease in germination. Lahontan seems to be in an intermediate position. These results are in general agreement with the conclusions of Rodger et al. and Uhvits.

Work is now being carried on to determine the degree of heritability of this character and whether it is related to drouth tolerance and winterhardiness. If this ability proves to be highly heritable and correlated with drouth tolerance and winterhardiness, a rapid and simple method of screening large numbers of seed for these characters is available.

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N/P RATIO OF WHEAT GRAIN AS AN INDICATION OF NITROGEN FERTILIZER REQUIREMENT

WHEAT grain samples from simple fertilizer trials conducted at the following stations in cooperation with the respective State Agricultural Experiment Stations during a three-year period, were analyzed for nitrogen and phosphorus:

- Woodward, Oklahoma
- Garden City, Kansas
- Hays, Kansas
- Colby, Kansas
- Akron, Colorado
- Archer, Wyoming
- Sheridan, Wyoming
- North Platte, Nebraska
- Newell, South Dakota
- Dickinson, North Dakota
- Mandan, North Dakota
- Huntley, Montana
- Moccasin, Montana
- Pendleton, Oregon

Hard red spring wheat was grown at Sheridan, Newell, Dickinson, Mandan, and Huntley; white wheat at Pendleton; and hard red winter wheat at the remainder of the stations.

All trials were on either fallow or grain stubble land. Treatments consisted of no fertilizer; nitrogen at 20 to 40 pounds per acre; P at 15 to 40 pounds per acre (in most instances from 30 to 40 pounds); and a combination of nitrogen and phosphorus at the same rates as applied separately. There were generally six replications of each treatment.

In order to determine if there was any relation between yield response to fertilizers and chemical composition of grain, simple correlation coefficients were determined for various combinations of yield and chemical data. Relative yields were computed by the procedure shown in the footnote of table 1, so that all yields would be on a comparable basis. From 28 to 32 pairs of variables were available for study, for all stations and years.

The highest coefficient (—0.799) was obtained from the correlation of the N/P ratio of grain from the nonfertilized plots and relative yield of the nitrogen fertilizer treatment. However, there was a significant curvilinearity in regression, calculated by the second degree polynomial, in which case the correlation coefficient was increased to 0.878 (figure 1). Deviation from curvilinear regression was 23% of the total (1 — R²), whereas from linear regression the deviation was 36.2% of the total (1 — r²) indicating a definite improvement in prediction by use of the curve.