

The Relationship between Corn Grain and Silage Yield

by Joe Lauer

Introduction

The relationship between corn grain yield and silage yield is important for determining silage value. This ratio is also used in calculating federal loan deficiency payments (LDPs).

The current method for calculating this relationship first appeared in 1972. Since that time much progress has been made in breeding adapted, high-yielding hybrids that are more resistant to biotic and abiotic stresses. These breeding changes have resulted in corn hybrids that produce a higher proportion of grain than those grown in the 1970s.

Comparing corn grain and silage yield

To describe the relationship between grain and silage yield, data were used from Wisconsin's corn silage trials. These plots had been split with half of the plot harvested for silage yield and the other half harvested later for grain yield.

Treatments applied to these plots included various plant density, planting date and row spacing factors. Numerous locations, hybrids and yield levels were obtained over the 1997 and 1998 growing seasons (n = 253).

The relationship between grain and silage yield for current hybrids is described in Figure 1. Grain equivalents at two silage moistures are shown in Tables 1 and 2. Current hybrids produce grain yield equivalents greater than that of 1972 levels, by 1.0 to 2.0 bushels of grain per ton of silage at 65% moisture.

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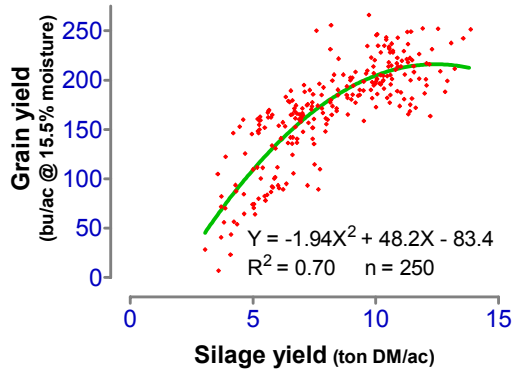
Table 1. Approximate bushels of grain contained in a ton of corn silage (silage at 65% moisture).

Grain Yield (bu/ac at 15.5% moisture)	Silage Yield (ton/acre)	Grain Equivalent (bu per ton of silage)
25	7.1	3.5
50	9.0	5.5
75	11.1	6.8
100	13.4	7.5
125	15.9	7.9
150	18.7	8.0
175	22.2	7.9

Table 2. Approximate bushels of grain contained in a ton of dry corn silage (silage at 0% moisture).

Grain Yield (bu/ac at 15.5% moisture)	Silage Yield (ton DM/acre)	Grain Equivalent (bu per ton of silage)
25	2.5	10.0
50	3.2	15.8
75	3.9	19.2
100	4.7	21.3
125	5.6	22.4
150	6.6	22.8
175	7.8	22.4

Figure 1. The relationship between corn grain yield and silage yield during 1997 and 1998 in Wisconsin.



References

Adapted from Field Crops 28.5-27. The relationship between corn grain and silage yield. Dep. of Agronomy, Univ. of Wisconsin-Madison.

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