

SILAGE YIELDS MORE DRY MATTER AND NUTRIENTS THAN HAY FROM THE SAME CROP OF FORAGE WHEAT

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Reilly and Butt (1984) considered silage to have advantages over hay in terms of quality as a result of less weather damage and that silage can be harvested earlier than hay when plants are of higher nutritive value. This paper reports the dry matter (DM) and nutrient yield from a crop of Baroota Wonder wheat conserved as silage or hay on the same property in WA in 1993 and 1994.

The crops were grown according to normal farm practice and, when cut for silage or hay, were windrowed and allowed to wilt, and the crop DM yield was determined from quadrats. For silage the wilted crop was either chopped and ensiled in a clamp or baled and wrapped with several layers of plastic film. For hay the air-dried crop was baled with a round baler. There was 18.5 mm of rain over 3 days in 1993 while the crop cut for hay was drying in windrows, but the 1994 growing season had a very dry finish. Eight weeks after the crop was cut for silage, yield of regrowth was determined from quadrats and samples were stored for analysis. Silage, hay and regrowth were analysed for DM, crude protein (CP) and *in vitro* DM digestibility for estimation of metabolisable energy (ME).

Table 1. Crop and regrowth yield and CP and ME content of silage, hay and regrowth with total yield of DM and potentially available CP and ME for a crop conserved as silage or hay in 1993 and 1994

Attribute ^A	1993 silage crop	1993 hay crop	1994 silage crop	1994 hay crop
<i>Conserved crop</i>				
Stage of growth	Ear emergence	Flowering	Flowering	Milk/dough
Wilting time	24-36 hours	9-11 days	24-28 hours	6-8 days
DM yield (Tonnes/ha)	7.0 ^a	10.1 ^b	6.0	5.8
DM (%)	28.1	92.0	40.1	87.0
CP (% in DM)	11.6 ^a	7.7 ^b	11.9 ^a	8.2 ^b
ME (MJ/kg DM)	9.7 ^a	8.5 ^b	10.1	9.6
<i>Regrowth</i>				
DM yield (Tonnes/ha)	4.0 ^a	0.9 ^b	1.3	0
CP (% in DM)	9.3 ^a	13.1 ^b	9.1	
ME (MJ/kg DM)	9.1	9.8	8.7	
<i>Total yield</i>				
DM (Tonnes/ha)	11.0	11.0	7.3	5.8
CP (kg/ha)	1184	896	832	476
ME (MJ x 10 ³ /ha)	105	95	72	56

^A Values for an attribute within a year with different superscripts are different ($P < 0.05$).

The crop yield when cut for silage in 1993 was less than when cut for hay, but the silage CP and ME was higher (Table 1). The crop yield was similar when cut for silage and hay in 1994 and with the dry finish some plants had lost leaves when cut for hay. These, and further losses at baling the hay, may explain the silage being 45% higher in CP like the younger crop in 1993; the difference in ME in 1994 was not as large. The rain in 1993 while the hay crop was in windrows probably lowered the CP and ME content of this hay, but enhanced the regrowth from the area cut for silage.

The total DM yield from the crop cut as silage in 1993 was the same as that cut for hay, but regrowth from the silage area contributed 36% to the total DM whereas the higher nutritive value regrowth from the hay area contributed only 8%. Regrowth from the silage area in 1994 contributed 18% of total DM, but the hay area produced no regrowth. This study shows that with 2 contrasting seasons in WA the total yield of potentially available CP and ME is higher if a cereal crop is cut for silage than if it is cut for hay. The Meat Research Corporation funded this on-farm research.

REILLY, T.L.C. and BUTT, S.J. (1984). In "Silage in the 80s", (Eds T.J. Kempton, A. G. Kaiser and T.E. Trigg) p. 243 (P.G. Print of Armidale).