

## NIR Equations

Table 1: Grass Hay

Constituent	Formula
DDM	$88.9 - 0.779 * [ADF]$
DMI1_GH	$-2.318 + 0.442 * [PROTEIN] - 0.01 * [PROTEIN] * [PROTEIN] - 0.0638 * [TDN1] + 0.000922 * [TDN1] * [TDN1]$
DRYMI	$120 / [aNDF]$
NDFD48new	$100 - (100 - [IVTDMD48]) / [aNDF] * 100$
NEL_GH	$1.0876 - 0.0127 * [ADF]$
NFC_GH	$100 - ([aNDF] - 2 + [PROTEIN] + 2.5 + [Ash])$
RFQ	$[DMI1] * [TDN1] / 1.23$
RFV	$[DRYMI] * [DDM] / 1.29$
TDN_GH	$4.898 + 89.796 * [NEL]$
TDN1_GH	$[NFC] * 0.98 + [PROTEIN] * 0.87 + 1.5 * 0.9 * 2.25 + ([aNDF] - 2) * ([NDFD48] * 0.664 + 22.7) / 100 - 10$

Table 2: Legume Hay

Constituent	Formula
DDM	$88.9 - 0.779 * [ADF]$
DMI1_AH	$(0.012 * 1350 / ([aNDF] / 100) + ([NDFD48] - 45) * 0.374) / 1350 * 100$
DRYMI	$120 / [aNDF]$
NDFD48new	$100 - (100 - [IVTDMD48]) / [aNDF] * 100$
NEL_AH	$1.044 - 0.0119 * [ADF]$
NFC_AH	$100 - ([aNDF] - 2 + [PROTEIN] + [FAT] + [Ash])$
RFQ	$[DMI1] * [TDN1] / 1.23$
RFV	$[DRYMI] * [DDM] / 1.29$
TDN_AH	$4.898 + 89.796 * [NEL]$
TDN1_AH	$[NFC] * 0.98 + [PROTEIN] * 0.93 + ([FAT] - 1) * 0.97 * 2.25 + ([aNDF] - 2) * [NDFD48] / 100 - 7$

Table 3: Fermented Corn Silage

Constituent	Formula
NDFD48new	$100 - (100 - [IVTDMD48]) / [aNDF] * 100$
NEL_CS	$1.044 - 0.0124 * [ADF]$
NFC_CS	$100 - ([aNDF] - 2 + [PROTEIN] + [FAT] + [Ash])$
TDN_CS	$31.4 + 53.1 * [NEL]$
TDN1_CS	$[NFC] * 0.98 + [PROTEIN] * 0.93 + ([FAT] - 1) * 0.97 * 2.25 + ([aNDF] - 2) * [NDFD48] / 100 - 7$