Calculating the Credit for Previous Lime Applications

The rate at which applied limestone reacts in the soil to neutralize soil acidity is relatively slow, often requiring as much as two years to be fully effective. As a result, soils tested for lime requirement within two years of a lime application may still show a need for pH adjustment even thought sufficient limestone was applied initially. Applying the full rate of lime recommended by the current soil test could easily result in over-liming of Delaware's poorly buffered, low organic matter soils and lead to problems such as Mn or Zn deficiency.

To avoid the risk of overliming soils, the University of Delaware calculates a _lime credit_ for soils limed in the previous 18 months. This credit is based on the previous liming rate and time since application and calculated using the equation:

$$LC = PLR \ X \ LAF$$

where:

LC = lime credit in tons/ac

PLR = previous lime rate in tons/ac

LAF = lime availability factor based on length of time since last application (_see Table 3-9, below_).

The _net lime requirement_ is determined by subtracting the lime credit from the lime recommendation based on the current soil test.

Table 3-9. Lime availability factors as a function of time since application.

Time Since Application	Lime Availability Factor
----- months -----	
0 - 6	0.75
7 - 12	0.50
13 - 18	0.25
18+	0.00

Example 3-2: Calculating a Lime Credit

Information Given:

Current lime recommendation:	1 ton/ac (from Example 1)
Previous lime application:	2 tons/ac (from field history)
Time since application:	15 months (from field history)
Lime availability factor:	0.25 (from Table 7)

Lime Credit: **0.5 tons/ac**

$$LC = PLR \times LAF$$
$$= 2.0 \times 0.25$$
$$= 0.5 \; tons/ac$$

Net Lime Requirement: **0.5 tons/ac**

$$NLR = CLR - LC$$
$$= 1.0 - 0.5$$
$$= 0.5 \; tons/ac$$