DO LEGUME LEAVES HASTEN THE CURING PROCESS BY PUMPING MOISTURE FROM THE STEMS?

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A very prevalent theory of haymaking is that legume leaves must be kept green as long as possible in order that they may dry the stems by pumping water from them. A recent textbook (2) says, "Legume hay crops cure best under conditions which prevent the drying of the leaves. Transpiration is thus allowed to continue and the moisture in the stems is largely drawn out through the leaf surface. ... In the windrow or swath the majority of leaf surfaces are protected from the sun and continue to exude moisture by transpiration." Others (1 and 4) have recently made the same explanation. In fact one of the leading manufacturers of hay tools is advertising a special system of curing hay which is supposed to be based on this drying of the stems by the leaves. Just where the theory originated the writer has not discovered. The earliest statement of it he has seen is in "Clover Culture" by Henry Wallace (5). From these and many other sources the theory has become well known throughout the corn belt. The writer has seen no contradiction of it until this year, when Piper, et al (3) express doubt of its correctness.

From the standpoint of plant physiology it has always been a little difficult to understand exactly how the leaves could remove very much water from the stems. In many, if not most, plants the stomata close as soon as the leaf wilts even slightly, and the leaf no longer favors rapid evaporation, but resists water loss for days.

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Reference by number is to "Literature Cited," p. 375.

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