Sustainable Barley-Legumes Rotations for Semi-Arid Areas of Lebanon. (A06-yau053839-Oral)

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Abstract:

In semi-arid areas of West Asia and North Africa, farmers have been practising more continuous barley cultivation, which is expected to be unsustainable. The objective of the study was to evaluate if barley and total dry-matter yields can be sustained by including legumes in the rotation. The long-term rain-fed trial, which was the first of its kind in Lebanon, was conducted at AREC (33.56 N, 36.5 E, 995 masl, 512 mm annual precipitation) from 1994/95 to 2001/02. Eight different two-phase barley-based rotations were compared: barley-barley, -lentil, -vetch, -bitter vetch, -vetch for grazing, -medics for grazing, -vetch for hay, and -vetch with barley for hay. Seed and straw yield under barley monoculture started to decline after 3 years due to severe infestation of wild barley. In the last 5 years of the trial, barley-legume rotations yielded more total dry-matter per rotation cycle, and had higher stability than the barley monoculture. The study showed that barley and total dry-matter yields could be sustained by including a legume in the rotation. Farmers in the semi-arid areas of Lebanon should adopt a barley-legume rotation such as barley-vetch.

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