

## Variation of POD activity in roots of different fall dormancy alfalfa under the autumn cutting

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**Key words** alfalfa, POD activity, later autumn cutting, fall dormancy

**Introduction** Medicago sativa which is the typical leguminous forage is the widest usage in China and the whole world. The regrowth is serious because of chilliness in the north of China. Some factors attached to hard resistance are last cutting time in the autumn, different fall dormancy. So, in the experiment, the research on the change of the POD as the evaluation index are carried on to reveal the relationship between last cutting time in the autumn and different fall dormancy.

**Materials and methods** Nine cultivars of M. sativa, AC Caribou, Algonquin, WL323, Amerigraze401, Sanditi, WL414, Hunter River, WL525HQ, Siriver which fall into three classes of autumn dormancy were chose to compared in the experiment. There are 5 treatments (3 replications). The autumn cutting treatments were applied on the following dates: 10 September, 20 September, 30 September, 10 October, 20 October, and no cutting. Then the POD in the root is measured on 5 Nov, 20 Nov, next 26 Mar and 17 May to observe the change of POD in the root and overwinter rate of different fall dormancy alfalfa by the different cutting time.

**Results and Analysis** Through analyzing the regrowth rate by different cutting time, the date of 30 September when is 20 days before the first frost is the lowest. There is no difference between the date of 10 October and 20 October without effect to regrowth rate ( $p > 0.05$ ). Through the correlation Analysis, there is high relationship between POD activity and regrowth rate in 5 November at the cutting date of 10 October. The POD activity rise when the alfalfa regreen, so, there is some relationship between POD activity and regreen but without knowing about mechanism.

**Table 1** The Correlation Analysis on Sep 10th and Sep 20th on POD.

Cutting date	9.10				9.20		
Sampling date	9.10	11.5	11.20	9.20	11.5	11.20	
Correlation index	0.06	0.57	0.82	0.20	0.37	0.78	

**Table 2** The Correlation Analysis on Sep 30th, Oct 10th and Oct 20th on POD.

Cutting date	9.30	10.10			10.20				
Sampling date	9.30	11.5	11.20	10.10	11.5	11.20	10.20	11.5	11.20
Correlation index	0.31	0.28	0.54	0.36	0.97*	0.34	0.28	0.41	0.86

**Conclusions** The POD activity has the relationship with the hard resistance and regreen of alfalfa; The cutting date of 30 September has the important effect on regrowth rate of alfalfa.

### Reference

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