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The study on the period of stigma keeping vitality and optimum pollinated time of *Medicago varia martin .cv . 'Xinmu No .1'*

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Key words : alfalfa , pollination , stigma receptivity , stigma vitality , pod-set rate

Introduction The effect of the time of stigma keeping vitality and pollinated on the breed system is nothing less than that of the pollinators species ,visitation rate and etc . on breed system of plant(He Ya-ping 2003) . Alfalfa is typical cross-pollinate plant . the stigma receptivity and the time of the stigma pollinated have important effect on seed weight and pod-set rate per raceme (Strickli ,1996 ;Hanson ,1961) . The study on the time of stigma keeping vitality and the optimum pollination time was carried out *Medicago varia martin .cv . Xinmu .No .1* by artificial pollination to stigma at the different bud formation stage on flowering and time after flower opening .

Materials and methods Field experimnts was conducted in the Ggrassland Station of Xinjiang Agricultural University(44 8° N , 86 7° E) . The three years old *Medicago varia martin .cv . Xinmu .No .1* was used in the experiment . At anthesis , a screen house(5×4×2m³) was set to keep insets from flower . Health plants were selected in screen house and made pollination artificially at the third and forth stage of bud formation on flowering and from the first day to fourth day after flower opening every day . The screen house was abrogated , when all of the artificial pollination was finished . The mean pod-set rate per raceme and the number of seed in pod were counted after the pod matured .

Results

Table 1 The pod-set state of alfalfa pollinated in different time after flower opening .

Pollination time	III period	VI period	First day	Second day	Third day	Fourth day
No .of flower/raceme	1 .38±0 .24	1 .20±0 .13	11 .88±1 .55	11 .00±0 .72	8 .75±0 .96	7 .92±0 .66
Pod-set rate/raceme(%)	18 .21±11 .07	30 .00±13 .33	65 .17±2 .01	41 .40±3 .65	36 .25±6 .62	34 .25±6 .73
No .of seed / pod	0 .62±0 .24	1 .20±0 .51	2 .53±0 .31	2 .06±0 .31	1 .65±0 .30	1 .63±0 .33

There was the pod-set rate per raceme of 18 .21% ±11 .07 at the third stage of bud formation on flowering which pollens matured after the stigma was pollinated . There was the highest pollination percentage and 65 .17% ±2 .01 pod-set rate per raceme when the flowers were pollinated at the first day of flowering . The stigma still had vitality when pollination was made at the fourth day of flowering , the pod-set rate per raceme was about 34 .25% ±6 .73 , but the stigma receptivity was significantly low (Table 1) .

Conclusion The stigma vitality can last 4-6 days , but the optimum pollination time was the first day of flowering . The percentage of pollination was affected by the following factors such as the stigma receptivity , optimum pollination time , the time of pollen deposited on the stigma , the relationship between different source pollen and the compatibility between pollen and stigma .

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