Posters

The nutritional effects of different mulberry varieties on biological characters in silkworm

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Background - Growth and development of silkworm larvae and cocoon production depend on the nutritional elements of mulberry leaves. Nutritional efficiency in feeding of larval silkworm by different mulberry varieties is different and dependant on mulberry quality.[1]

Design - 30000 larvae Silkworm *Bombyx mori* L. were applied at this experiment. An experiment was conducted with some breeded mulberry varieties [including Kenmochi (KM), Kairyonase (KN), Ichinose (I), Shinichinose (SI)] and a local variety in two different rearing seasons (spring and autumn). Each treatment was fed by leaves of one mulberry varierity but no other ingredients. In order to determine the relationship betweem nutrient elements (protein, nitrogen, potassium, phosphore, moisture, fibre, ash etc) and larvae performance, the nutrient composition of the leaves was analyzed. Rearing was conducted under standard conditions and biological characteristics were recorded. The data were analyzed using a complete randomized design (CRD) model with factorial arrangement by means of SAS statistical programme and Duncun new multiple range (DNMRT).

Outcomes - Summary of the results is shown in following table.

Larval mortality (%)			Moulting duration (hr)			Nutrition duration (hr)			Larval duration (hr)			Silkworm Varieties
Difference	Autumn	Spring	Difference	Autumn	Spring	Difference	Autumn	Spring	Difference	Autumn	Spring	
3.1ns	7.5c	10.6a	-9.1**	110.0a	100.8a	-205.6**	701.3a	495.6a	-214.8**	811.3a	596.5a	T1 (Local)
-2.0ns	5.8c	3.7a	4.6ns	95.0c	99.6c	-154.6**	628.5c	473.8b	-150.0**	723.5c	574.5b	T2 (SI)
-43.8**	48.3ab	4.4a	5.3ns	94.3c	99.6a	-239.5**	716.3a	476.8b	-234.1**	810.6a	576.5b	T3 (I)
-22.1**	26.6b	4.5a	0.0ns	102.0b	102.0a	-180.3**	669.1b	488.8ab	-180.3**	771.1b	590.8ab	T4 (KN)
-42.3**	53.3a	11.0a	0.8ns	97.6bc	98.5a	-224.1**	699.6a	475.5b	-223.3**	797.3a	574.0b	T5 (KM)
-21.4	28.3	6.8	0.3	99.8	100.1	-200.1	683.0	482.1	-200.5	782.8	582.2	Means

Means followed by different letters are significantly different at the 5% level (P<0.05) by DNMRT.

Conclusion - Different kinds of mulberry varieties and rearing seasons have significant effects on silkworm characteristics (P<0.01). Biochemical analysis of mulberry leaves also showed these varieties had different percentage of nutrients (such as proteins, moisture etc). DNMRT indicated that Shinichinose and Kinase varieties are suitable for late autumn rearing, but Ichinose variety is the best variety in spring rearing (P<0.05). Most studied characters showed better performance (P<0.01) in spring than autumn.

References

1. Zhang GJ, Wang HL, Pan MH, Chen CZ, Miao CL. Leaves of different mulberry varieties growing under different standing conditions as diet for silkworms in the 5th instar and their efficiency. Journal of Shadong-Agricultural University 1992; 24 (1): 21-29.

Suspect mycotoxicoses in horses, cattle and dogs

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Background - Mycotoxins are secondary fungal metabolites that are produced by fungi in field crops, on pastures or in stored commodities. There are many mycotoxins and when ingested can give rise to an array of clinical signs depending on the toxin ingested, the dose and the duration of exposure.

Objective - To describe three separate cases of mycotoxicoses in horses, cattle and dogs that occurred in the Upper Hunter Valley region of New South Wales.

Outcomes - Case 1: Three foals about 2-3 months of age showed variable signs of incoordination and ataxia but were otherwise clinically normal except for one foal which had diffuse cutaneous oedema. The mares were still suckling the foals, which were observed from time to time suck at grass heads. One foal died from misadventure, the others recovered uneventfully after removal from the paddock, which contained paspalum pasture infected with ergots of *Claviceps paspali*, the cause of paspalum staggers as exhibited by the foals. Case 2: A dairy herd that had been milking normally suddenly reduced milk production. The cows became sensitive to touch when milked. Some cows in the herd exhibited increased respiration rate and panting when moved. Examination of the batch of barley that the cows had been fed as part of a concentrate diet, showed the presence of the ergots of *Claviceps purpurea*. Toxins within the ergot are known to cause bovine hyperthermia, which was exhibited by the cows. Case 3: Cattle dogs presented in an excited state with severe muscle tremors and signs of ataxia. The second dog had eaten the vomitus of the first dog and subsequently developed similar clinical signs. Both animals had increased respiration rate but other neurological and clinical tests were normal. A third dog also presented with much milder clinical signs. The animals were sedated overnight and subsequently recovered. The clinical presentation by the dogs suggested an intoxication. A thorough investigation of the food and surrounds, in which the dogs were kept identified only one possible source of intoxication and that was mouldy food that had come from a refrigerator. The food was heavily infested with *Penicillium crustosum*, a fungus known to produce the tremogenic mycotoxin penitrem A. The clinical signs of the dogs were consistent with penitrem A intoxication.

Conclusion - Mycotoxins are natural food contaminants that can enter the animal food system through stored grain, standing pastures or from poorly stored food. The clinical signs displayed by animals will vary considerably and in some situations quickly dissipate when the source of the toxin is removed.