LEVELS OF OXYTETRACYCLINE IN PLASMA AND MILK IN PIG.

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A slow-release formulation of oxytetracycline (LA 200® - Chas. Pfizer & Co.) has been shown to maintain a significant plasma level for 96 hours in cattle following a single intramuscular dose at 9 mg/lb. The following research was conducted to determine the oxytetracycline plasma and milk levels which could be demonstrated at various times following injection of the product.

Trial I - Duration of Plasma Oxytetracycline Levels in Neonatal Pigs

Procedure: Pigs were injected with 1 ml of LA 200 at 3, 12, and 21 days of age. Blood samples were collected at 4, 12, 24, 48, and 96 hours following the oxytetracycline injection. The range and number of samples exceeding .2 mcg/ml for the different age pigs are shown below.

Range of plasma oxytetracycline values (mcg/ml)
Number of samples >.2 mcg/number of samples

Age at injection	Hours Post-injection (PI) 4	12	24	96	168
3 days	10.0 - 32.9 / 9/9	6.6 - 30.2 / 9/9	5.6 - 23 / 8/8	.5 - 1.6 / 9/9	0 - .5 / 4/7
12 days	7.4 - 10.3 / 8/8	4.1 - 8.4 / 8/8	1.7 - 4.8 / 8/8	.4 - .9 / 8/8	0 - .4 / 5/8
21 days	3.0 - 5.2 / 8/8	2.0 - 5.8 / 8/8	1.2 - 2.1 / 6/6	.5 - .9 / 8/9*	0 - .3 / 2/9

* One sample showed a trace at 96 hours, but had a .3 mcg/ml at 168 hours.

Significant plasma levels of oxytetracycline were noted in samples at 96 hours PI. The one pig which had only a trace in the 96-hour test exhibited .3 mcg/ml at 168 hours. All pigs were injected with 1 ml of LA 200, and consequently the 4-, 12-, and 24-hour samples were highest in the 3-day-old pigs and lowest in the 21-day-old pigs; however, the range between pigs in a group was not as great at the later bleedings.

Trial II - Plasma and Milk Oxytetracycline Levels in Post Parturient Sows

Procedure: Three sows were injected with LA 200 (1 ml/22 pounds) within 12 hours after they farrowed. Plasma and milk samples were collected at 4 hours and at 24-hour intervals for 6 days after injection.

Range of oxytetracycline values (mcg/ml)
Number of samples >.2 mcg/number of samples

	Hours Post-injection 4	24	48	72	96	120	144
PLASMA	4.8 - 7.2 / 3/3	2.4 - 3.2 / 3/3	1.0 - 1.5 / 3/3	.5 - 1.1 / 3/3	.4 - .7 / 2/2	.4 - .5 / 3/3	0 - .4 / 1/3
MILK	.4 - 1.7 / 3/3	.9 - 1.9 / 3/3	1.0 - 1.5 / 3/3	.5 - 1.1 / 3/3	.4 - .7 / 2/2	.4 - .5 / 3/3	.4 / 2/2

Significant levels of oxytetracycline were found in all plasma and milk samples for a minimum of 120 hours PI.

Summary: The effectiveness of oxytetracycline is dependent upon the susceptibility of the infective agent to the antibiotic, and a satisfactory response cannot be anticipated solely because of a continuous plasma level. It is doubtful if the amount of oxytetracycline ingested by the neonatal pig in the milk from medicated sows would be a therapeutic level. LA 200 was found to give an extended plasma level which would be effective in treating many disease conditions.