

PLASMA LEVELS OF VITAMIN E AND VITAMIN A IN CATTLE RAISED  
OVER A ONE YEAR PERIOD ON THE SQUAW BUTTE AND UNION STATIONS

I.J. Tinsley, P.D. Whanger, and J.B.J. van Ryssen

Along with the trace element analyses, plasma levels of vitamin E (α-tocopherol) and vitamin A (retinol) have been measured in cattle at the Union and Squaw Butte stations through an annual feeding cycle. The averages for each sampling date are given below.

μg Vitamin E/ml plasma

| Union       |                |                 | Squaw Butte |                |                 |
|-------------|----------------|-----------------|-------------|----------------|-----------------|
| <u>Date</u> | <u>Control</u> | <u>+Tr. Min</u> | <u>Date</u> | <u>Control</u> | <u>+Tr. Min</u> |
| 09/25/85    | 7.81           | 8.29            | 09/11/85    | 7.47           | 7.10            |
| 11/20/85    | 3.76           | 3.75            | 10/29/85    | 4.24           | 5.0             |
| 04/08/86    | 1.76           | 1.41            | 05/15/86    |                |                 |
| 06/26/86    | 8.68           | 8.83            | 07/23/86    | 11.50          | 10.2            |
| 09/17/86    | 7.74           | 8.37            | 10/09/86    | 5.10           | 5.4             |

μg Vitamin A/ml plasma

| Union       |                |                 | Squaw Butte |                |                 |
|-------------|----------------|-----------------|-------------|----------------|-----------------|
| <u>Date</u> | <u>Control</u> | <u>+Tr. Min</u> | <u>Date</u> | <u>Control</u> | <u>+Tr. Min</u> |
| 09/25/85    | .789           | .817            | 09/11/85    | 0.880          | 0.847           |
| 11/20/85    | 1.195          | 1.107           | 10/29/85    | 0.988          | 0.825           |
| 04/08/86    | 0.828          | 0.886           | 05/15/86    |                |                 |
| 06/26/86    | 1.087          | 1.184           | 07/23/86    | 1.276          | 0.955           |
| 09/17/86    | 0.980          | 1.072           | 10/09/86    | 0.787          | 0.850           |

There is an impressive decrease in plasma vitamin E levels when the animals are on winter forage. Just what this means to the animal is not clear, but in some cases selenium levels are also depressed suggesting the possibility of nutritional stress. Vitamin A levels in plasma reflect the amount of binding protein in plasma and these values indicate that the liver stores are adequate. Some seasonal variation is observed but an explanation for these changes is not apparent. It is interesting to note that the vitamin E and A levels show different patterns. The plasma vitamin E levels gradually decreased reaching the lowest level at the end of winter feeding and subsequently increased throughout the summer months. In contrast, the plasma vitamin A levels remained fairly constant throughout the entire year.