




Feeding Alfalfa to Layers

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Alternative feed ingredients:

- Triticale:
Layers and broilers
- Beans: red beans, white beans, pinto beans
Broilers
- Other Legumes: field pea, chick pea, lentils
Broilers and Turkeys
- Hazelnuts:
Broilers
- Hulless Oats:
Layers



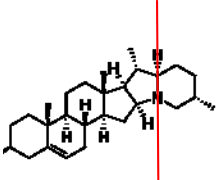
Contacted by Wilcox Family Farms

Alfalfa used for many years

Available, inexpensive and moderately high protein. (17-20%)
Good mix of Amino Acids

Potential problems:

- Saponin – glycosides
 - class of compounds similar to phytoestrogens
- High fiber –



Research is variable and inconclusive at typical feeding levels

Heywang et al. 1959:
20% alfalfa reduced egg production

Kingan and Sullivan: 1964
Up to 20% protein – no effect, production, egg wt, feed consumption, fertility, hatchability
Yolk color increase – declined during hot weather.

Nakaue et, al.: 1980
10% high and low saponin alfalfa
No effect – production, Egg quality traits.
pullet growth and conversion improved, feed consumption higher

Laudadio, et al., 2014
15 % low fiber alfalfa
No production or egg quality effects,
Darker yolks and lower cholesterol in egg and serum.

Experimental Design

90 birds – 3 reps of 10 per treatment

Individual cages

Birds and feed weighed at day prior to alfalfa diets – every 4 weeks
Eggs production recorded daily – eggs saved every 2 weeks
Stored at 39F

After 5 days, All eggs weighed, 4 average eggs saved for analysis from each rep

Albumen height, yolk color and shell thickness recorded

Started on 7.5 and 15% alfalfa – increased at 8 weeks to 20 and 30% alfalfa

Formulation and Analysis of diets containing various levels of alfalfa.

Ingredients	Control	7.5%	15%	20%	30%
Corn	45.0	41.0	39.0	35.5	31.5
Wheat	23.25	20.0	15.0	15.0	10.0
SBOM (46%)	19.25	18.0	17.0	15.0	13.0
Alfalfa (17%)	0	7.5	15.0	20.0	30.0
Limestone	7.5	7.5	7.5	7.5	7.5
Soybean Oil	2.0	3.0	3.5	4.0	5.0
Premix	3.0	3.0	3.0	3.0	3.0
Calculated analysis:					
Protein	16.09	16.21	16.37	16.14	16.16
ME	2760	2720	2660	2620	2550
Methionine	0.34	0.35	0.35	0.35	0.35
TSAA	0.61	0.61	0.61	0.60	0.59



Production of hens fed various levels of Alfalfa.

8/10-10/6 (%) (57 days)		10/7 – 10/31 (%) (25 days)	
Control	94.97	Control	94.90
7.5% Alf	96.33	20% Alf	96.00
15% Alf	95.90	30% Alf	96.37

Egg weight from hens fed various levels of Alfalfa.



Diets	Wk 0	Wk 8	Diets	Wk 12
Control	59.38	63.27	Control	64.18
7.5% Alf	57.74	61.95	20% Alf	63.47
15% Alf	58.70	62.88	30% Alf	62.27



Albumen Height of eggs from hens fed various levels of Alfalfa.



Diets	Wk 0	Wk 8	Diets	Wk 12
Control	7.15	6.91	Control	7.26
7.5% Alf	6.72	7.10	20% Alf	7.47
15% Alf	6.83	6.74	30% Alf	7.59

Yolk color of eggs from hens fed various levels of Alfalfa.



Diets	Wk 0	Wk 8	Diets	Wk 12
Control	7.15	7.58	Control	6.92
7.5% Alf	5.25	8.50	20% Alf	11.90
15% Alf	5.50	10.58	30% Alf	12.50



Thickness of eggs from hens fed various levels of Alfalfa.

Diets	Wk 0	Wk 8	Diets	Wk 12
(mm)		(mm)		
Control	0.39	0.39	Control	0.38
7.5% Alf	0.39	0.39	20% Alf	0.39
15% Alf	0.38	0.39	30% Alf	0.38

Shell + Membranes

Blood and meat spots in eggs from hens fed various levels of Alfalfa.



Diets	Wk 0	Wk 8	Diets	Wk 12
Control	5/12	9/12	Control	7/12
7.5% Alf	4/12	5/12	20% Alf	1/12
15% Alf	4/12	6/12	30% Alf	3/12

Body weights of hens fed various levels of Alfalfa.

Diets	Wk 0	Wk 8	Diets	Wk 12
	(kg)			(kg)
Control	1.98	2.07	Control	2.08
7.5% Alf	1.91	2.03	20% Alf	1.98
15% Alf	1.97	2.04	30% Alf	1.97



Feed consumption of hens fed various levels of Alfalfa.

Diets	Wk 8
	(g/day)
Control	109.0
7.5% Alf	111.7
15% Alf	107.3



Conclusion

Little or no production of egg quality effects

Yolk color enhanced

increase reduced with increased alfalfa in the diet