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w36

(x x)

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(% % % % %)

(FTU)

(p< /)

%

(p< /)

FTU/kg

(p< /)

%

(p> /)

(p< /)

FTU/kg

%

%

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(Vilma et al., 2004; Newkirk &
Classen, 2001)

(Newkirk & Classen, 2001)

(Simsons et al., 1992)

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(Keshavarz, 2000)

(1995) Summers

(Simsons et al., 1992; Barrier-Guillot et al., 1996)

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w₃₆

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w₃₆

(El-Batal & Abdel, 2001)

w₃₆

(Vilma et al., 2004)

(Said et al., 1984)

(1984) AOAC

(1994) NRC

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(Frost & Roland, 1997; Gillis et al., 1957)

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(× cm)

c°

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W₃₆

/

W₃₆

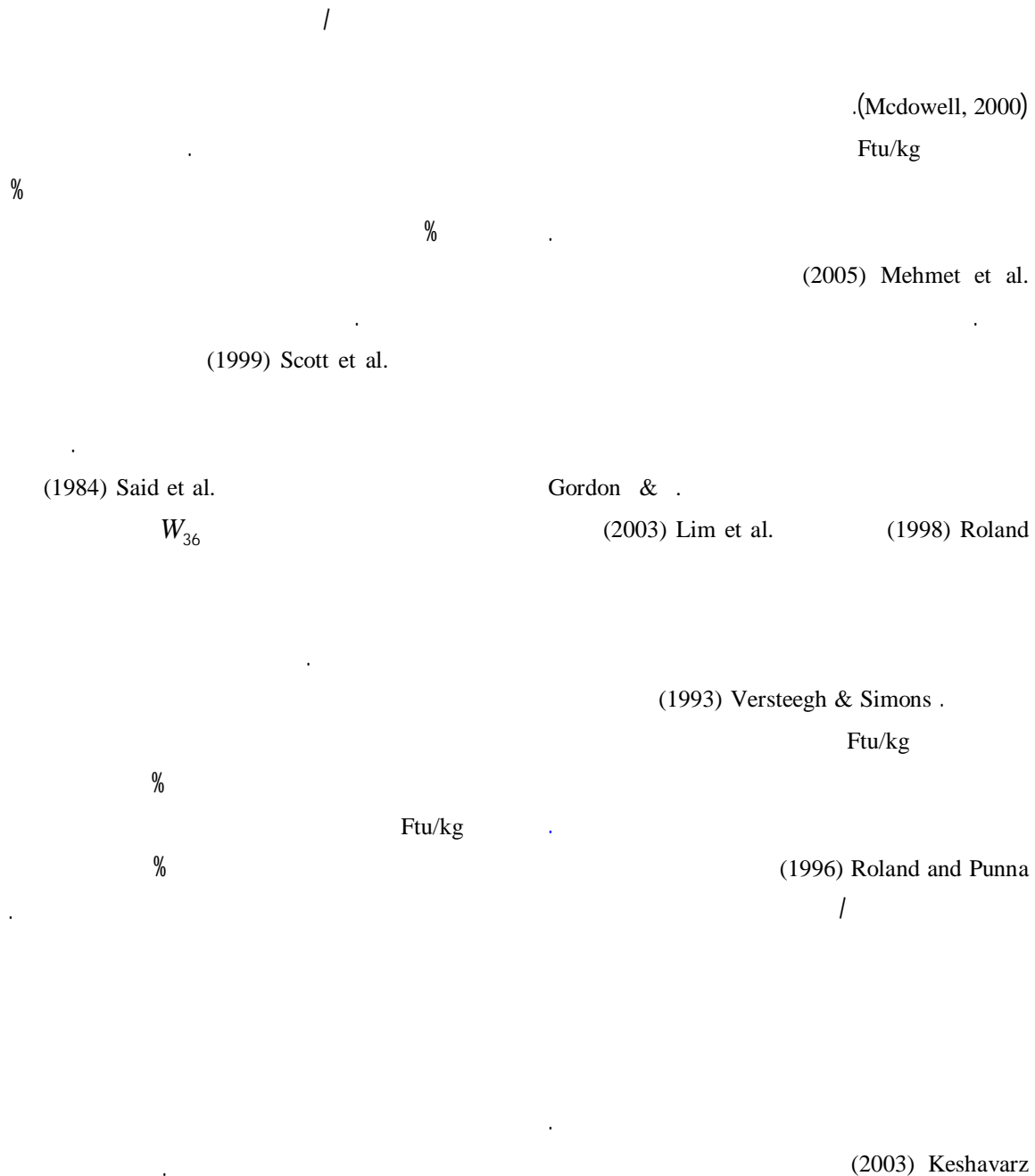
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(AOAC, 1984)

AOAC

(× ×)

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REFERENCES

1. AOAC. (1984). *Official Methods of Analysis of the Association of official analytical chemists* (Virginia, USA, Association of official analytical chemists). 14th Ed.
2. Barrier-Guillot, B., Casado, P., Maupetit, P., Jondreville, C., Gatel, F. & Irbier, M. (1996). Wheat phosphorus availability: 1- in vitro study; factor affecting the endogenous phytase activity and phytic phosphorus content of wheat. Relationship between different analytical characteristics. *Journal Science Food Agriculture*, 70, 62-68.
3. El-Batal, A. I. & Abdel, K. H. (2001). Phytase production and phytic acid reduction in rapeseed meal by *Aspergillus niger* during solid state fermentation. *Food Research International*. 34, 715- 720.

4. Frost, T. J. & Roland, D. A. (1997). The influence of various calcium and phosphorus levels on tibia strength and eggshell quality of pullets during peak production. *Poultry Science*, 70, 963-969.
5. Gillis, M. B., Keane, K. W. & Collins, R. A. (1957). Comparative metabolism of phytate and ignoring p32 by chicks and pullets. *Journal of nutrition*, 62, 13-26.
6. Gordon, R. W. & Roland, D. A. (1998). Influence of supplemental phytase on calcium and phosphorus utilization in laying hens. *Poultry Science*, 77, 290- 294.
7. Keshavarz, K. (2000). Reevaluation of nonphytate phosphorus requirement of growing pullets with and without phytase. *Poultry. Science*, 70, 1143- 1153.
8. Keshavarz, K. (2003). The effect of different levels of nonphytate phosphorus with and without phytase on the performance of four strains of laying hens. *Poultry Science*, 82, 71- 90.
9. Leeson, S. & Summers, J. D. (1997). *Commercial Poultry Nutrition*. (2nd edition). Department of animal & poultry University of Guelph: Guelph Ontario, Canada.
10. Lim, H. S., Namkung, H. & Paik, I. K. (2003). Effects of phytase supplementation on the performance, egg quality and phosphorous excretion of laying hens fed different levels of dietary calcium and nonphytate phosphorus. *Poultry Science*, 82, 92-99.
11. Mcdowell, L. R. (2000). *Vitamins in Animal and Human Nutrition* (2nd Edition). Iowa State university press/Ames.
12. Mehmet, C., Bestami, D. & Azman, M. A. (2005). Effects of Microbial Phytase Supplementation on Feed Consumption and Egg Production of Laying Hens. *International Journal of Poultry Science*, 4 (10), 758-760.
13. National Research Council (NRC). (1994). *Nutrient Requirement of poultry* (9th Ed.) National Academy Press, Washington DC.
14. Newkirk, R. W. & Classen, H. L. (2001). The non-mineral nutritional impact of phytate in canola meal fed to broiler chicks. *Journal of Animal Science and Technology*, 91, 115-128.
15. Roland, D. A. & Punna, S. (1996). Variation in the utilization of phytate phosphorous with in the same strain of broiler. In: proceeding of 17th annual meeting of the southern poultry Science Society. pp: 22- 23.
16. SAS Institute. (2001). *SAS/STAT User Guide*. Release 8.02 ed. SAS Institute Inc., Cary, NC.
17. Said, N. W., Sullivan, T. W., Sunde, M. L. & Bird, H. R. (1984). Effect of dietary phosphorus level and source on productive performance and egg quality of two commercial strains of laying hens. *Poultry Science*, 63, 2007-2009.
18. Scott, T., Kampen, A. & Silversies, F. G. (1999). The effect of phosphorus, phytats enzyme, and calcium on the performance of layers fed corn-based diets. *Poultry Science*, 78, 1742-1749.
19. Simons, P. C., Jongbloed, M. & Kemme, P. A. (1992). Improvement of phosphorus availability by microbial phytase in broilers and pigs. *British Journal of Nutrition*, 64, 525- 540.
20. Summers, J. D. (1995). Reduced dietary phosphorus levels for layers. *Poultry Science*, 74, 1977-1983.
21. Versteegh, H. A. & Simons, P. C. (1993). Relationship between several measures of shell quality and egg breaking in commercial processing plant. *Poultry Science*, 68, 1730-1733.
22. Vilma, S., Asta, R. S., Romas, G. & Vytautas, T. (2004). The influence of syntetic enzyme phytase (Ronozyme P) on utlization of phosphorus and calcium in broiler chickens fed diets. *Veterinary Journal of ZooTechnical*, T, 26(48), 69-73.