Alfalfa as Forage Crop for Rabbits

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ABSTRACT

Alfalfa (lucerne) is important forage legume as protein and mineral source for ruminant and pseudo-ruminant (rabbit) productivity in Indonesia. Rabbits have the ability to utilize forage materials, and exploiting this attribute will be of advantage to local producers who may not be able to afford the cost of commercial diets. Earlier studies indicates that expensive and imported feedstuff can be substituted with local forages containing high protein and minerals in example alfalfa. Alfalfa, rich in protein, minerals and vitamins can be harvested for hay, haylage, green-chop, or by grazing. However, alfalfa contains water-soluble substance that are toxic. A strategy to reduce the risk of toxic will be presented in the review article.

Key Words: *Medicago sativa*, Rabbit, Toxic

INTRODUCTION

Alfalfa (*Medicago sativa* L.) originated from the Mediterranean basin and southwest Asia (Iran, Afganistan) and was one of the first forage crops to be dometicated (Cook et al. 2005). Alfalfa is cultivated in more than 80 countries in area exceeding 36 million ha (Radovic et al. 2009). China was one of earliest countries to grow alfalfa (lucerne). In 126 BC, China began raising lucerne along the Yellow River. Alfalfa is one of more than 100 species of cultivated forage in China and sown on 1804.7 thousand ha in 1998 (Hu Zizhi & Zhang Degang 2001). Alfalfa is perennial herbaceous legume, and one of the most important legume forages of the world due to its high nutritional quality, yields and high adaptability in temperate, subtropical and tropical regions. It is also known as blaue luzerne (German), lucerne (English), luzerna (Portuguese), luzerne (French), mielga (Spanish), murasaki-umagoyashi (Japanese) (Barnes et al. 2007). Alfalfa grown best on soils that are well drained, neutral in pH, and have high fertility (Lukiwati 2009). It is climatically adapted to 96% of the area used for dryland agriculture. Harvesting later at early flowering provides acceptable forage and nutrient yields and reasonable stand persistence (Sheaffer & Evers 2007). Dry matter production of alfalfa on 132 kg P/ha of rock phosphate or superphosphate fertilizer was 1.19 ton and 1,12 ton/ha, respectively at the first cutting (Sunarni et al. 2012).

Rabbit production in Indonesia and another tropical countries is based on the use of different green forage sources with high percentage of soluble and insoluble fiber. The ability of rabbits to thrive on forages, makes rabbits production cheap. Exploiting this attribute will be of advantage to local producers who may not be able to afford the cost of commercial diets. One strategy to improve raising rabbit is utilizing legume alfalfa as protein and mineral sources (Lukiwati 2009). Capra et al. (2010) showed a significant increase in linolenic acid content in the intramuscular and dissectible fat when including fresh alfalfa ad libitum in the diet of growing rabbits in Uruguay. The use of fresh alfalfa in the diet of rabbit is, in Indonesia condition, a particularly suitable strategy for small farmers. This, however is, limited since fibre digestion in this monogastric herbivore is post gastric in the caecum (Davidson & Spread 1975). Alfalfa also contains water-soluble substance that are toxic (Tava et al. 1993), and hay is a simple technology can be used to eliminate this problem.

FEEDING STRATEGY WITH ALFALFA

Alfalfa hay is the most widely used fibre source in rabbit diets, and high palatable in the range 30-40 %. It provides long and digestible fibre, thus promoting adequate transit time for the digesta and a balance growth of of the caecal flora (de Blas & Mateos 2010). Alfalfa

hay is also a valuable source of protein (25% of dietary protein) and rich in calcium though its nutritive value varies greatly, depending on several factors such as the harvesting and drying process or plant maturity at harvest. High levels of alfalfa hay (88 and 96%) decreased rabbit mortality by 13.6 and 10.3%, respectively (Fernandez-Carmona et al. 1998). Better growth rates were achieved by feeding chopped alfalfa hay of higher nutritional quality rather than alfalfa hay cubes (Linga & Lukefahr 2000).

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