

**Kualitas Fisik dan Fermentasi Silase Rumput Gama Umami
(*Pennisetum purpureum* cv. GU) dengan Suplementasi
Mikrobial *Multi-Purpose* pada Umur Pemanenan
yang Berbeda**

**Abdul Hafidh Rizqian Ihtiarta
18/430631/PT/07786**

INTISARI

Penelitian ini bertujuan untuk mengetahui kualitas fisik dan fermentasi silase rumput Gama Umami (*Pennisetum purpureum* cv. GU) dengan suplementasi mikrobial *multi-purpose* pada umur pemanenan rumput yang berbeda. Mikrobial *multi-purpose* yang digunakan adalah Saus Burger Pakan (SBP®). Bahan utama dan perlakuan pada penelitian ini yaitu rumput pada umur pemotongan 30 hari dengan suplementasi mikrobial *multi-purpose* (30-SBP) dan kontrol (30-CON), serta rumput pada umur pemotongan 60 hari dengan suplementasi mikrobial *multi-purpose* (60-SBP) dan kontrol (60-CON). Penelitian dilakukan dengan menggunakan desain penelitian rancangan faktorial 2x2, dimana faktor pertama adalah umur pemotongan rumput sedangkan faktor kedua adalah suplementasi mikrobial *multi-purpose*. Silase diperam selama 21 hari menggunakan silo drum plastik ukuran 40 liter. Setiap perlakuan menggunakan 6 ulangan. Analisis data menggunakan *Analysis of Variance* dua arah (*Two-way ANOVA*) melalui *General Linear Model (GLM) procedure* kemudian dilakukan uji Duncan's *Multiple Range Test (DMRT)* pada aplikasi SAS dengan probabilitas 0,05. Hasil penelitian menunjukkan bahwa tidak terdapat pengaruh dari faktor umur pemanenan rumput dan suplementasi mikrobial *multi-purpose* terhadap kualitas fisik (warna, aroma, tekstur, keberadaan jamur) silase. Faktor umur pemanenan rumput 30 hari secara nyata menurunkan pH, kadar asam propionat, dan kadar amonia (NH₃), serta meningkatkan kadar asam laktat dan butir silase ($P < 0,05$). Selanjutnya, suplementasi mikrobial *multi-purpose* secara nyata menurunkan nilai pH dan kadar NH₃, serta meningkatkan kadar asam laktat, asam asetat, asam propionat, dan nilai *colony forming unit (CFU)* bakteri asam laktat ($P < 0,05$). Faktor umur pemotongan rumput dan suplementasi mikrobial *multi-purpose* memberikan interaksi yang nyata terhadap nilai pH dan kadar asam laktat silase ($P < 0,05$). Perlakuan silase terbaik pada penelitian ini yaitu perlakuan 30-SBP (umur pemanenan rumput 30 hari + suplementasi mikrobial *multi-purpose*) yang menunjukkan nilai pH terendah dan kadar asam laktat tertinggi.

(Kata kunci: Kualitas Fermentasi, Kualitas Fisik, Mikrobial, Silase Rumput, Umur Pemanenan)

Physical and Fermentation Quality of Gama Umami Grass Silage (*Pennisetum purpureum* cv. GU) with Multi-Purpose Microbial Supplementation at Different Harvest Ages

Abdul Hafidh Rizqian Ihtiarta
18/430631/PT/07786

ABSTRACT

This research aimed to determine the physical quality and fermentation of Gama Umami grass (*Pennisetum purpureum* cv. GU) silage with multi-purpose microbial supplementation at different harvest stage of maturity grass. The multi-purpose microbe used was Saus Burger Pakan (SBP®). The main ingredients and treatments in this study were grass at 30 days of harvest age with multi-purpose microbial supplementation (30-SBP) and control (30-CON), as well as grass at 60 days of harvest age with multi-purpose microbial supplementation (60-SBP) and control (60-CON). The research was carried out using a 2x2 factorial research design, where the first factor was the maturity stage of grass harvest while the second factor was multi-purpose microbial supplementation. The silage was aged for 21 days using a 40 liter plastic drum silo. Each treatment used 6 replications. Data analysis used two-way ANOVA via the General Linear Model procedure, then Duncan's Multiple Range Test was carried out on the SAS application with a probability of 0.05. The results of the research showed that there was No. effect from the different stage harvest maturity of grass and multi-purpose microbial supplementation on the physical quality (color, aroma, texture, presence of mold) of silage. The first factor, 30 days grass maturity harvest, has significantly reduced pH, propionic acid, and ammonia (NH₃) levels, and increased lactic acid and butyric acid levels in silage (P<0.05). Furthermore, multi-purpose microbial supplementation significantly reduced pH values and NH₃ levels, and increased levels of lactic acid, acetic acid, propionic acid, and colony forming unit (CFU) values of lactic acid bacteria (P<0.05). Both grass maturity harvest factor and multi-purpose microbial supplementation provided a significant interaction with the pH value and lactic acid content of the silage (P<0.05). Both grass maturity harvest factor and multi-purpose microbial supplementation provided a significant interaction with the pH value and lactic acid content of the silage (P<0.05). The best silage treatment in this study was the 30-SBP treatment (grass harvested at 30 days + supplementation of multi-purpose microbes), which showed the lowest pH value and the highest lactic acid content.

(Keywords: Fermentation Quality, Grass Silage, Harvesting Maturity, Microbes, Physical Quality)