UNIVERSITÀ DEGLI STUDI DI MILANO

CONCORSO PUBBLICO, PER TITOLI ED ESAMI, A N. 1 POSTO DI CATEGORIA C - AREA TECNICA,TECNICO-SCIENTIFICA ED ELABORAZIONE DATI, PRESSO il DIPARTIMENTO DI SCIENZE AGRARIE E AMBIENTALI - PRODUZIONE, TERRITORIO, AGROENERGIA BANDITO CON DETERMINA N. 19987/2019 DEL 19.11.2019, PUBBLICATO SULLA G.U. N. 95 DEL 03.12.2019 - CODICE 20468

La Commissione giudicatrice del concorso, nominata con determina n. 23857/2019 del 30/12/2019 e così composta:

PROF.SSA SANDRUCCI ANNA ALFEA - PRESIDENTE

SIG. D'ARDES VINCENZO - COMPONENTE

SIG. DITTO DOMENICO - COMPONENTE

SIG.RA GHISALBERTI VIVIANA - SEGRETARIO

comunica i quesiti relativi alla prova orale:

GRUPPO DI QUESITI NR. 1

- Il mais: coltivazione e principali utilizzi
- L'impianto di mungitura
- Procedura corretta e attrezzature per l'esecuzione di un campionamento di suolo

Lettura e traduzione dell'abstract (allegato e sottoriportato).

GRUPPO DI QUESITI NR. 2

- La coltivazione del frumento in pianura Padana, dalla semina alla raccolta
- Parametri che caratterizzano la qualità igienico-sanitaria del latte e fattori influenti
- Dispositivi di protezione individuale e collettiva in laboratorio chimico-fisico

Lettura e traduzione dell'abstract (allegato e sottoriportato).

GRUPPO DI QUESITI NR. 3

- La coltivazione dell'erba medica, le sue caratteristiche e le modalità di conservazione
- La composizione del latte e i fattori che la influenzano
- Mulini da laboratorio e criteri di scelta in funzione delle caratteristiche del campione e del tipo di analisi

Lettura e traduzione dell'abstract ((allegato e sottoriportato).

GRUPPO DI QUESITI NR. 4

- La sala di mungitura e le operazioni di mungitura
- Il carro unifeed
- Descrivere i tipi di aratro utilizzabili per le principali lavorazioni del terreno

Lettura e traduzione dell'abstract (allegato e sottoriportato).

South African Journal of Animal Science 2011, 41 (no. 4)

Effects of bacterial silage inoculants on whole-crop maize silage fermentation and silage digestibility in rams

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Abstract

This study evaluated the effects of ensiling whole-crop maize with bacterial inoculants, *Lactococcus lactis* (LL) and *Lactobacillus buchneri* (LB), on the fermentation and nutrient digestibility in rams. Whole-crop maize (265 DM g/kg) was ensiled for 90 days in 210 L drums with no additive, or with LL or LB. After three months, the drums were opened and the silage was sampled for fermentation characteristics. Diets were produced by mixing the whole-crop maize silage with lucerne hay (90 : 10) on an "as fed" basis, and a digestibility study was conducted using five South African Mutton Merino rams (37.2 ± 2.2 kg live weight) per treatment. Inoculating maize silage with LL and LB reduced ammonia nitrogen concentration, but did not affect silage pH. The concentration of lactic acid was increased with LL compared to the other treatments. A higher concentration of acetic acid was obtained with LB inoculation compared to the other treatments. The aerobic stability of the silage was improved with LB while it was reduced with LL inoculation, as indicated by a higher CO_2 production than the latter. The intake and digestibility of dry matter, organic matter, crude protein and fibre were improved by inoculation. Furthermore, inoculations resulted in improved nitrogen retention. It was concluded that the inoculants improved silage fermentation and diet digestibility. Inoculation with LB improved aerobic stability and LL inoculation reduced it.

Keywords: Alfalfa, lucerne, aerobic stability, *Lactococcus lactis*, *Lactobacillus buchneri*
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ELSEVIER
Geoderma

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Sensitivity of soil organic carbon stocks and fractions to different land-use changes across Europe

Abstract

Land-use changes(LUC) influence the balance of soil organic carbon (SOC) and hence may cause CO_2 emissions or sequestration. In Europe there is a side by side of LUC types that lead to SOC loss or SOC accumulation. However, there is a lack of studies covering all major LUC types to investigate qualitative and quantitative LUC effects on SOC. In this study we sampled 24 paired sites in Europe to a depth of 80

cm, covering a wide range of pedo-climatic conditions and comprising the major European LUC types cropland to grassland, grassland to cropland, cropland to forest and grassland to forest. To assess qualitative changes and the sensitivity of different functional SOC pools with distinct turnover times, we conducted a fractionation to isolate five different fractions of SOC. The mean SOC stock changes after LUC were 18 ± 11 Mg ha^{-1} (cropland to grassland), 21 ± 13 Mg ha^{-1} (cropland to forest), − 19 ± 7 Mg ha^{-1} (grassland to cropland) and − 10 ± 7 Mg ha^{-1} (grassland to forest) with the main changes occurring in the topsoil (0–30 cm depth). However, subsoil carbon stocks (> 30 cm depth) were also affected by LUC, at 19 out of 24 sites in the same direction as the topsoil. LUC promoting subsoil SOC accumulation might be a sustainable C sink. Particulate organic matter (POM) was found to be most sensitive to LUC. After cropland afforestation, POM accounted for 50% (9.1 ± 2.3 Mg ha^{-1}) of the sequestered carbon in 0–30 cm: after grassland afforestation POM increased on average by 5 ± 2.3 Mg ha^{-1}, while all other fractions depleted. Thus, afforestations shift SOC from stable to labile pools. The resistant fraction comprising the so-called inert carbon was found to be only slightly less sensitive than the total SOC pool, suggesting that an inert carbon pool was not chemically extracted with NaOCl oxidation, if there is any inert carbon.

Soils

Nitrogen Fertilization Timing Effect on Wheat Production, Nitrogen Uptake Efficiency, and Residual Soil Nitrogen

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Abstract
Split fertilizer N application has been proposed for improving N uptake efficiency in wheat (*Triticum aestivum* L.) production systems, but results have been inconsistent. In this field study, 75 and 150 kg N ha^{-1} was applied either all preplant or in two, three, or four split applications based on wheat growth stage (GS) to determine N timing effect on wheat yield and apparent fertilizer N recovery. Vegetative samples were also collected at Feekes GS 4, 6, and 10 to determine treatment effects on tissue N concentration during the growing season. Soil samples were collected after harvest to evaluate residual N quantity and movement in soil relative to N rate and time of application. The soil used was a Fluventic Ustochrept-Udic Chromustert intergrade. Nitrogen rate and application timing appeared to have less effect than year on yield and N parameters. Significant grain yield increases were achieved with split applications of N fertilizer when N was topdressed at GS 4 or 6 in 1989 as compared with all preplant or application at GS 10. Split N application at GS 10 produced greater grain yield than application at GS 4 or 6 in 1990. Nitrogen uptake efficiency was greatest with 75 kg N ha^{-1} and split application. Soil NO^-_3-N concentration was significantly higher at 150 kg N ha^{-1} than at 75 kg N ha^{-1}. Significantly lower residual NO^-_3-N with the preplant treatment was not accounted for by greater grain or straw N content.

Livestock Production Science
Volume 96, Issues 2–3,30 September 2005, Pages 129-139

Review article

Electrical conductivity of milk as a phenotypic and genetic indicator of bovine mastitis: A review

Abstract

This review presents the scientific background of the relationship between electrical conductivity (EC) of milk and bovine mastitis, and the possibility of using EC as an indicator trait in a breeding program is discussed. Electrical conductivity of milk was introduced as an indicator of mastitis several decades ago. Until now EC has solely been used for detection of bovine mastitis on the phenotypic level. However, EC may be used as an indicator of mastitis in a breeding program where selection against mastitis is included. Somatic cell score (SCS) has been widely considered to be the most useful indirect measure of mastitis. However, using SCS for genetic evaluation has some disadvantages such as low recording frequency. Most automatic milking systems are equipped with sensors for measuring EC, and EC can be easily recorded at every milking. Heritability estimates of EC are found to be moderate, ranging from 0.12 to 0.36, depending on the trait definition and the model used. Genetic correlations between EC and mastitis have been estimated to be in the range from 0.65 to 0.8, hence, obtaining genetic response for mastitis should be possible by using information of EC in genetic evaluation. However, collecting and implementing EC information in a breeding program may be a challenge.

Milano, 16/01/2020

LA COMMISSIONE

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