

Nordic Association of Agricultural Scientists —



NJF Seminar 422

**Fostering healthy food systems
through organic agriculture -
Focus on Nordic-Baltic Region
- International Scientific Conference**

Tartu, Estonia, 25-27 August 2009

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PROGRAMME

ABSTRACTS

LIST OF PARTICIPANTS

Organized by
Estonian University of Life Sciences
Ministry of Agriculture of the Republic of Estonia
Estonian Organic Farming Foundation
Nordic Association of Agricultural Scientists

Meat bone meal as nitrogen and phosphorus fertilizer

L. Chen¹, J. Helenius¹ and A. Kangas²

¹ University of Helsinki, Department of Applied Biology, Finland. Tel.: +358 44 058 8090; e-mail: lin.chen@helsinki.fi

² MTT Agrifood Research Finland

Meat bone meal (MBM) contains considerable amount of nutrients (~8% N, ~5% P and ~10 Ca). So it can be a potential organic fertilizer for different crops. Traditionally, the production of mineral N and P fertilizers is unsustainable due to the reliance on fossil fuels in case on N, and limited mineral resource stocks in case of P. Using complementary fertilizers which originate from organic waste materials is gaining interest. On the other hand, organic farms are usually lacking nutrient sources if animals are not kept on farm at the same time. Whether MBM can achieve similar crop yield and quality as the mineral fertilizer was studied. To quantify and qualify MBM use as an N and P fertilizer, two field experiments were done on spring barley and oat in 2000 and 2001. MBM and two types fur animal manure based fertilizers (FAMB and FAMBCF) were compared to mineral fertilizer PellonY3 in three N levels: 60, 90 and 120 kg/ha. MBM and FAMBCF gave the same grain yield as PY3. There was no additional yield increase by increasing N rate from 90 to 120 kg/ha. Four aspects of grain quality, namely 1000-grain weigh, test weigh, protein content and protein yield were tested. MBM, FAMBCF and PY3 tended to have similar effect while FAMB had lower effect. Since MBM has a low N/P ratio, when it is applied to meet crop's N demand, P will be at surplus. So using crop rotation and green manure for organic farm and only applying N fertilizer for conventional farm after using MBM is recommended. Adding K in MBM is also necessary when there is a lack of K in soil since MBM had only ~1% K.

Effect of Pinolen on winter rape seed losses in relation to maturity

R. Kosteckas², V. Liakas¹, A. Šiuliauskas¹, V. Rauckis², E. Liakienė¹ and E. Jakienė¹

¹ Lithuanian University of Agriculture, Studentų str. 11, Akademija, Kaunas distr., LT-53361, Lithuania; e-mail: vytautas.liakas@gmail.com

² UAB "Kustodija", Laisvės pr. 117A, Vilnius, LT-06118, Lithuania; e-mail: raimondas@kustodija.lt

Research objective: To determine the effect of Pinolen (Aventrol) and carbamate solutions on winter rape seed yields under Lithuanian conditions. Research place and time: Bariunai agricultural holding, Joniskis region, Lithuania. Trials were carried out in 2007–2008. Trial field soil: *JDg8-K(LVg-p-w-cc) Calc(ar)i-Epiphypogleyic Luvisols*. Research methods: Field trials, and biometric analysis of rape plants. Research data evaluation: Two-year research data confirmed the hypothesis of the authors that, in the winter rape crop, leaf-spray fertilization with Pinolen (0.5–1.0 l ha⁻¹) solutions three weeks before crop maturity results in the formation of an elastic capsule around the siliques and prevents them from splitting open with consequent loss of seed. Pinolen efficacy is greater in disease or pest damaged crops, and crops harvested late. From the economic and labour planning points of view, leaf-spray fertilization of winter rape with Pinolen should be combined with additional leaf-spray fertilization with carbamate solutions (20 kg ha⁻¹). Leaf-spray fertilization of winter rape with Pinolen (1.0 l ha⁻¹) + carbamate (20 kg ha⁻¹) solutions resulted in seed yield increases: in the 2007 trial by 0.64 and in the 2008 trial by 0.320 t ha⁻¹. Of the total seed augmentation, the Pinolen effect accounted for 33.3%. The protective efficacy of the capsule starts to decrease five weeks after leaf spray fertilization of the crop with these solutions.