



# Agricultural Journals

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# Res. Agr. Eng.

## M. Polák

### Ethanol enriched biodiesel as a fuel for

# engines

## Res. Agr. Eng., 50 (2004): 107-111

In the Czech Republic the increased utilization of the biofuels, especially for diesel engines, has been registered in the last ten years. The rape-seed oil based fuels – called biodiesel, is the most extended. The use of rape-seed oil brings a good

ecological and agronomic aspect, e.g. positive energetic and CO<sub>2</sub> balance, biological decomposition, etc. A special attention should be paid for the emissions. The paper presents the practical results of the performance with the commercially available biodiesel and their mixtures with different quantity of fermented ethanol. The testing was realized with an unmodified AVIA 712.18 truck engine and an unmodified ZETOR 7701 tractor engine according to thirteen-points homologation test method EHK R49 (ČSN EN ISO 8178-4). Biodiesel NATURDIESEL, according to the Czech Standard ČSN 6508, served as a basis for fuel blends and such a comparison fuel. Based on the experiment, it can be said, that the most suitable fuel blend is biodiesel + 2% additic of fermented bioethanol according to following points. This addition significantly

reduces the NO<sub>x</sub> emissions. At the AVIA engine the reduction is about 54% in comparison with non-additived fuel. With the Zetor engine, it is decreased 88% of its primary value. Even in cause of smokiness, the situation is similar favourable. The power output parameters are almost constant. No significant increase of fuel consumption has been observed. However, there is higher share of unburned