

FUNGUS CONVERTS STRAW INTO LIVESTOCK FEED

An abundance of straw from rice, wheat and sugar cane is available in the world and little or nothing is done with it. It is not easily digestible and this makes it unsuitable for use as livestock feed. Doctoral student Nazri Nayan has now found fungi that can remedy this shortcoming.

Plant cells consist of cellulose and hemicellulose, both sugar polymers that, in principle, ruminants can easily degrade. But plant cells also contain lignin, and this makes the cells hard to degrade for ruminants. Straw contains a relatively large amount of lignin. To increase its nutritional value, the lignin must be degraded. This can be done with chemicals, but also organically.

In nature, lignin can only be degraded by white-rot fungi, says John Cone, Nayan's co-supervisor at the Animal Nutrition Group. Well-known white-rot fungi are the oyster mushroom and the shiitake. Nayan tested various white-rot fungi from the fungus collection curated by co-supervisor Anton Sonnenberg of Wageningen Plant Breeding. He discovered that the degradation of lignin varies greatly depending on the fungi species and strain. This opens up possibilities for improving fungi for this purpose, says Cone. The mushroom group



▲ Goats eating straw treated with fungi.

at Plant Breeding is one of the few groups in the world with this capability.

During laboratory tests, the fungi degraded the lignin in a period of five to seven weeks. A second PhD candidate, Lei Mao, is studying the conservation of the straw after it has been

treated with the fungi. A third, Eli Ratni, is studying the straw's feed value for goats and cows. Plans are also in place to field-test the usability of the fungi-treated straw in several countries. 'We are working on projects in Vietnam, China and Brazil,' says Cone. **AS**