

Biodegradable Tying Materials

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Summary

In a comparative test, seven different biodegradable tube tying materials and four degradable binding materials for the MAX-pliers were compared.

The hollow cord materials: Jute twine (RHG, Hermann Meyer), black cotton ribbon (RHG, Hermann Meyer), white cotton tree tie (Hermann Meyer), green PLA tube tie (Hermann Meyer), brown PLA tube tie (Hermann Meyer), White PLA bio tube tie 3mm (RHG), green biodegradable PLA tying tube (Agro de Arend).

The MAX-plier materials: Pink PLA tape, brown PLA tape, MAX Paper tape, MAX-biorömerband tape.

Due to its low elasticity, the jute twine can lead to severe constrictions in cultures with strong growth in thickness.

However, this material decomposed very quickly in the ground. The materials consisting of cotton (textile tying ribbon and cotton tree tie, 35mm) or paper (MAX-paper tape) showed good durability for a period of 6 months. For longer cultivation times the UV-radiation and overall weather conditions will cause these materials to go porose and they will eventually tear and fall off. The cotton and paper materials decomposed fairly quickly in the ground, after 6 months only small pieces were left to be found.

Most of the PLA tube ties performed very well in handling and durability. Their elasticity allowed the ties to grow with the thickness growth of the trees. The

two materials in green and brown from Hermann Meyer started turning porous and falling off the trees after 4 months. These two materials also seem to decompose in the ground after 18 months they were partially degraded. The PLA tying tubes from RHG and Agro de Arend stayed intact longer than 24 months on the trees without causing constrictions and without breaking. After 24 months however, these materials were showing no signs of decomposing in the ground.

All tested MAX-Tapes were overstrained by the thickness growth in the bigger trees. But in the shrubs they performed very well for longer than 12 months.

One of the largest drawbacks by the PLA products is its very slow decomposition. These products are only decomposable under very certain circumstances, and it may take as long as 1000 years for them to decompose. Products made of PLA do not fit into plastic recycling systems, since it would contaminate the quality of the oilbased plastics. PLA should, because of the long decomposition time, not enter modern composting-systems, nor should it be left in nature. It stands to mention however, that the material in contrast to oilbased plastics is made of renewable sources such as cornstarch and lactic acids.