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Organic fertilizers for soil prosperity

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Present day intensive agricultural practices depend largely on external inputs such as fertilizer and pesticides. But the inputs do not come for free. They are priced high and the rising production costs and negative impact on the soil environment have been leading several farmers to think of alternate practices that are environmentally safe and sustain soil fertility. The need of the hour therefore is to make a conscious move towards sustainable practices that do not affect the environment and at the same time help growers to get a good yield. The dung and urine from the milch animals which are normally wasted or utilized without any value addition is converted into valuable vermin compost which improves soil fertility commands a better price and finds ready local market. The bio beverages, bio pesticides and bio fertilizers originated from cattle have proved to yield wonderful results without any side effects. Even the Mission Kakatiya designed by Government of Telangana aims at improving soil fertility by way of de silting the water bodies in rural areas for improving the catchment area of water. Such silt is found to be having all essential minerals, which contribute to soil health in natural way.

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Polymerase chain reaction is an efficient strategy for cattle fetal sex determination using cell free DNA from maternal plasma

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The development of methodological strategies that allow for the prediction of the fetal sex in cattle still remains a zootechnical challenge. Different methods have been implemented to direct the management of animals, giving producers an advantage in decision-making regarding activity planning and financial gains. Fetal nucleated cells reaching maternal peripheral circulation throughout the placental barrier is a well-recognized phenomenon. Thus, pregnant females will have circulating fetal DNA during pregnancy following a temporal relation between gestation and appearance and an increase in the concentration of fetal DNA in maternal plasma. The objective of this study was to evaluate the use of polymerase chain reaction analysis (PCR) of fetal cells/DNA in the maternal plasma of pregnant cows to determine the sex of the fetus. Plasma was harvested from 35 cows of mixed genotype at different stages of pregnancy ranging from 5 to 35 weeks. A male calf and a heifer calf provided the control samples. Fetal sex was determined by amplification of Y-specific sequences. For the 35 cows, the fetal sex predicted by this technique was in accordance with the sex of the calf at birth in 88.6% of cases. The agreement between predicted and observed fetal sex was less for cows with a gestational length of 35-48 days (63.6%). Regression analysis showed that there was a strong relationship between the probability of correctly predicting fetal sex and the stage of gestation. It was estimated that the test performed at 43.8 days post fertilization would have 95% accuracy, increasing to 99% accuracy for testing at 48.4 days and 99.9% accuracy for tests at 55.0 days or later. It was concluded that PCR analysis of fetal cells in maternal plasma can be used to predict successfully the sex of the fetus in cattle.

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