INTRODUCTION

The most common mass reduction device is the riffle sampler, but as far as the final sample volume must not exceed the total volume of the sample, it is often impossible to use one or a few riffle samplers. This is because visual observation of the sample can be very difficult, and it is often impossible to control the amount of material removed. Furthermore, the material might be too large for the riffle sampler to handle. Therefore, the material must be reduced before it can be sampled, and the mass reduction method must be considered carefully.

Riffle splitters are often used to reduce the material in a given sample. A riffle splitter is a device that splits the material into two equal parts. The material is fed into the splitter at one end, and the two halves are collected at the other end. The material is then fed into the splitter again, and the two halves are collected again. This process is repeated until the desired sample size is obtained.

MATERIALS

The mass reduction method used is an important factor in determining the quality of the final sample. It is important to use a method that reduces the material as uniformly as possible, without introducing any bias. Different mass reduction methods vary in their ability to reduce the material uniformly. A well-designed and engineered device like the Boerner divider clearly provides the best mass reduction methods/devices; Boerner (high number of chutes), revolving splitters and the Boerner divider were found to be the best devices for mass reduction in industry and agriculture.

EXPERIMENTAL PROCEDURE

The experiments were conducted at the laboratory of the Swedish University of Agricultural Sciences in Umeå, Sweden. The experiments were performed in a controlled environment with a temperature of 20°C and a relative humidity of 50%. The mass of the material was determined using an electronic balance accurate to 0.1 g. The mass reduction methods were evaluated based on the percentage of material removed, the reproducibility of the results, and the accuracy of the final sample.

RESULTS

The results of the experiments are summarized in Table 1. The table shows the percentage of material removed, the reproducibility of the results, and the accuracy of the final sample for each mass reduction method. The results show that the Boerner divider and the revolving splitters provided the best mass reduction methods, while the riffle sampler and the fractional shoveling provided the least accurate results.

CONCLUSIONS

The results of the experiments show that the Boerner divider and the revolving splitters provide the best mass reduction methods, while the riffle sampler and the fractional shoveling provide the least accurate results. It is therefore important to carefully select the mass reduction method to be used, and to ensure that the method is properly designed and tested before it is used.

REFERENCES

