

Conditioning effects on the physical and physiological quality of buffalograss (*Panicum maximum* Jacq.) seed

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INTRODUCTION

The seed processing operation is an important stage pos-harvesting to higher physical and physiological seed quality. For species whose seeds have differences in density due to non-uniform maturation, such as the *Panicum maximum* Jacq., the understanding of the processing effects on the physiological potential of the lots is fundamental.

OBJECTIVE

The objective of this study was to verify the changes in buffalograss (*P. maximum*, cv Tanzania) seed performance after each of the several phases of the conditioning process.

MATERIALS AND METHODS

A seed lot was sampled before and after conditioning in an air and screen cleaner and at the following discharge points of the gravity table: superior (S), superior-intermediate (IS), intermediate (I), intermediate - inferior (II), and inferior (I). Seeds were evaluated as to water content, purity, 1,000 seeds weight, germination, first count of germination, seedling vigor classification, primary root length, aerial part length, electric conductivity, and accelerated aging. The statistical treatments were distributed according to a completely random design with four replications and 50 seeds per replicate. The data were submitted to the analysis of variance and the means compared by the Tukey test at the 5% level of probability.

RESULTS

Table 1. Physical and physiological potential of 7 treatments in various stages of processing of seeds of *Panicum maximum* cv. Tanzania.: seed water content before (SWC - %) and after accelerated aging (SWCa - %), physical purity (PP - %), 1,000 seeds weight (TSW - g), germination (GE - %), first count of germination (FC - %).

Treatments	SWC	SWCa	PP	TSW	GE	FC
Original seed lot	8.4	20.6	71.5 c	1.15 c	74 a	72 a
Machine air and screen cleaner	8.7	23.5	80.0 b	1.04 d	79 a	77 a
Discharge Superior	8.8	23.5	95.5 a	1.26 a	81 a	80 a
Discharge Superior Intermediate	8.9	23.5	92.0 a	1.19 bc	79 a	78 a
Discharge Intermediate	8.4	22.6	80.0 b	1.27 a	79 a	78 a
Discharge Intermediate Inferior	7.7	28.0	4.2 d	0.36 g	10 c	10 c
Discharge Inferior	8.6	27.4	2.6 d	0.73 e	9 c	8 c
CV (%)	-	-	3.6	4.1	6.5	6.9

Means followed by the same letter in the column do not differ significantly at 5% level of probability according to Tukey test. CV (%) = Coefficient of Variation.

Table 2. Physical and physiological potential of 7 treatments in various stages of processing of seeds of *Panicum maximum* cv. Tanzania: seedling vigor classification (SVC - %), primary root length (PRL - cm), aerial part length (APL - cm), electric conductivity (EC - $\mu\text{S}\cdot\text{cm}^{-1}\cdot\text{g}^{-1}$) and accelerated aging (AA - %).

Treatments	SVC	PRL	APL	EC	AA
Original seed lot	70 a	2.0 a	4.2 a	76.7 abc	65 a
Machine air and screen cleaner	72 a	2.1 a	4.1 a	79.0 bc	48 cd
Discharge Superior	73 a	2.2 a	4.2 a	44.0 a	59 ab
Discharge Superior Intermediate	68 a	2.1 a	3.6 abc	45.0 a	54 bc
Discharge Intermediate	72 a	2.2 a	3.7 ab	48.8 ab	45 d
Discharge Intermediate Inferior	4 d	1.5 a	2.0 c	118.1 de	13 f
Discharge Inferior	7 d	1.7 a	3.3 abc	148.3 e	11 f
CV (%)	6,5	22,9	18,7	16,3	8,4

Means followed by the same letter in the column do not differ significantly at 5% level of probability according to Tukey test. CV (%) = Coefficient of Variation

CONCLUSIONS

The data showed that the air and screen cleaner is efficient only to increase seed lot purity. The gravity table causes favorable modifications in seed physical and physiological quality. The seed fractions from the upper and intermediate discharge points are more dense (1,000 seeds weight above 1.19 g) and exhibit maximum performance.



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