

### INTRODUCTION

AUTOMATIZED EVALUATIONS ARE HIGHLY DESIRABLE BY SEED INDUSTRY TO PROVIDE FAST RESULTS AND ELIMINATE INTERPRETATION ERRORS DURING INTERPRETATION BASED ON HUMAN VISUAL ANALYSIS

**OBJECTIVE:** IDENTIFY VARIATIONS IN THE RATIO OF EMBRYO DEVELOPMENT IN COMMERCIAL CUCUMBER SEED LOTS AND ITS RELATIONSHIP WITH PHYSIOLOGICAL POTENTIAL

### MATERIAL AND METHODS

❖ CUCUMBER SEEDS: CULTIVARS SUPREMO AND SAFIRA (FOUR LOTS EACH), WITH GERMINATION OVER 90% WERE RADIOGRAPHED, EVALUATED ACCORDING TO EMBRYONIC AREA (SOFTWARE TOMATO ANALYZER)

❖ THREE CATEGORIES OF EMBRYONIC AREA WERE DEFINED:

**I: <78.1%    II: 78.1 - 82.5%    III: >82.5%**

❖ GERMINATION PERCENTAGE (4 DAYS AT 25 °C) AND SEEDLING LENGTH WERE REGISTERED

### RESULTS

TABLE 1. PHYSIOLOGICAL CHARACTERIZATION OF THE CUCUMBER SEED LOTS

Cultivar	SL	G (%)	GFC (%)	SSAA (%)	SE (%)	EA (%)	
						Min. value	Max. value
Supremo	1	99 a	96 a	92 a	97 a	71.1	81.0
	2	99 a	99 a	95 a	97 a	75.0	83.4
	3	99 a	98 a	94 a	97 a	74.0	85.0
	4	90 b	89 b	66 b	93 b	65.6	87.0
C.V. (%)	-	3.1	4.0	6.2	2.8	-	-
Safira	5	100 a	97 a	98 a	98 a	76.4	85.7
	6	100 a	97 a	95 a	99 a	76.2	85.7
	7	99 a	95 a	97 a	100 a	74.9	84.4
	8	98 a	93 a	94 a	99 a	69.6	86.2
C.V. (%)	-	2.4	4.5	3.4	2.5	-	-

Seed lots (SL), Germination (G), germination first count (GFC), saturated salt accelerated aging (SSAA), seedling emergence (SE), embryonic area (EA)

❖ RESULTS FOR GERMINATION AND VIGOR OF THE SUPREMO CULTIVAR

INDICATED LOWER SEED PHYSIOLOGICAL POTENTIAL FOR LOT 4 (TABLE 1)

❖ SEEDS WITH EMBRYONIC AREA LOWER THAN 78.1% HAD THE LOWEST GERMINATION, MAINLY IN LOTS 3 AND 4 (SUPREMO CULTIVAR) AND 8 (SAFIRA CULTIVAR) (FIGURE 1)

### CONCLUSIONS

❖ THE SEMI-AUTOMATED ANALYSIS USING TOMATO ANALYZER SOFTWARE ALLOWS THE IDENTIFICATION OF SMALL VARIATIONS IN THE RATIO OF EMBRYONIC DEVELOPMENT IN CUCUMBER SEED LOTS

❖ SEEDS WITH EMBRYONIC AREA LOWER THAN 78.1% WERE FOUND TO BE MORE LIKELY TO GENERATE LESS DEVELOPED NORMAL SEEDLINGS OR ABNORMAL SEEDLINGS

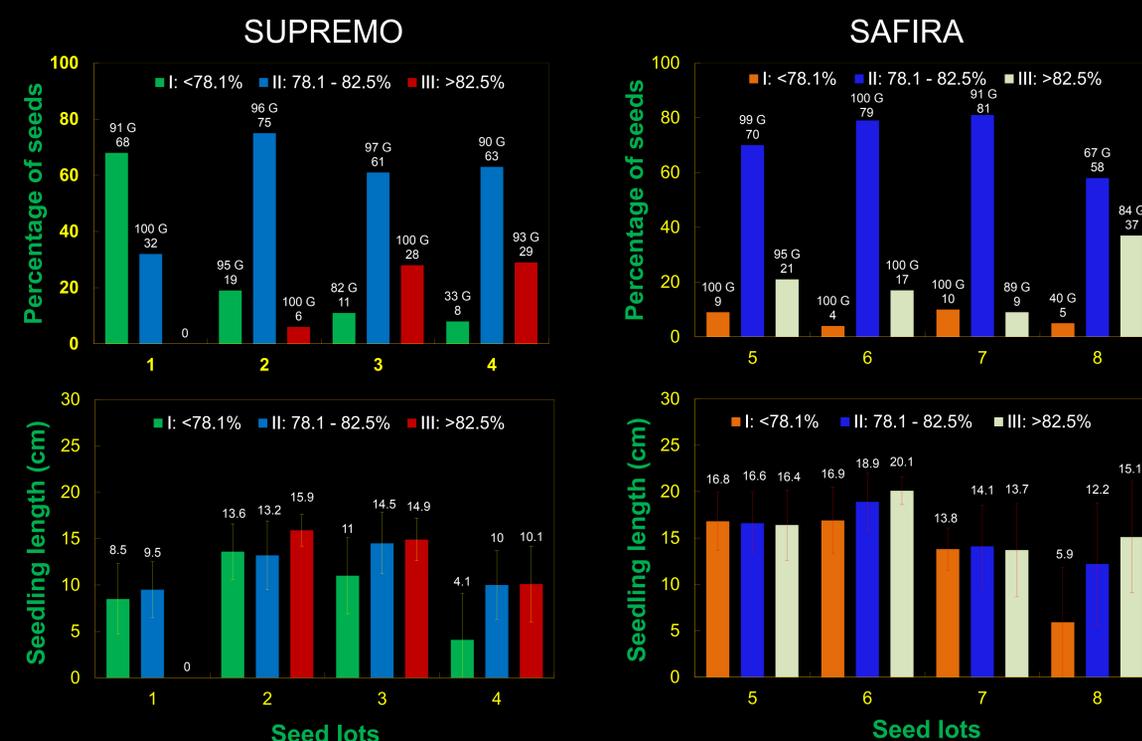


FIGURE 1. PERCENTAGE OF SEEDS, GERMINATION AND SEEDLING LENGTH (MEAN STANDARD DEVIATION) FOR EACH CATEGORY OF EMBRYONIC AREA

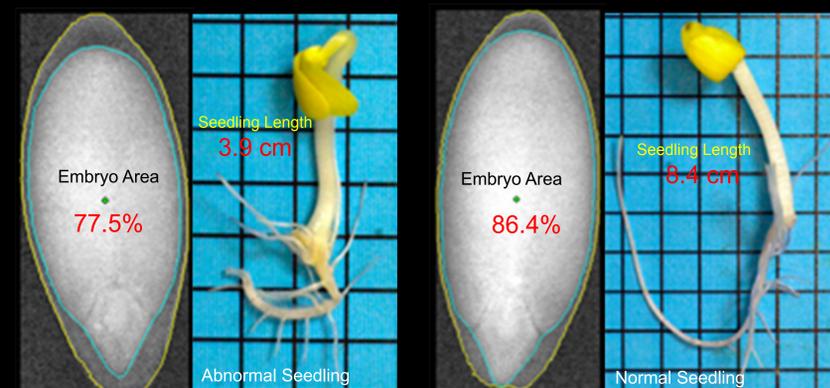


FIGURE 2. EMBRYO AREA OF RADIOGRAPHED CUCUMBER SEEDS AND THEIR RESPECTIVE SEEDLINGS (LOT 4)