



EFFECT OF SOIL MANAGEMENT ON DISEASE SUPPRESSIONS IN SELECTED AGROECOSYSTEMS



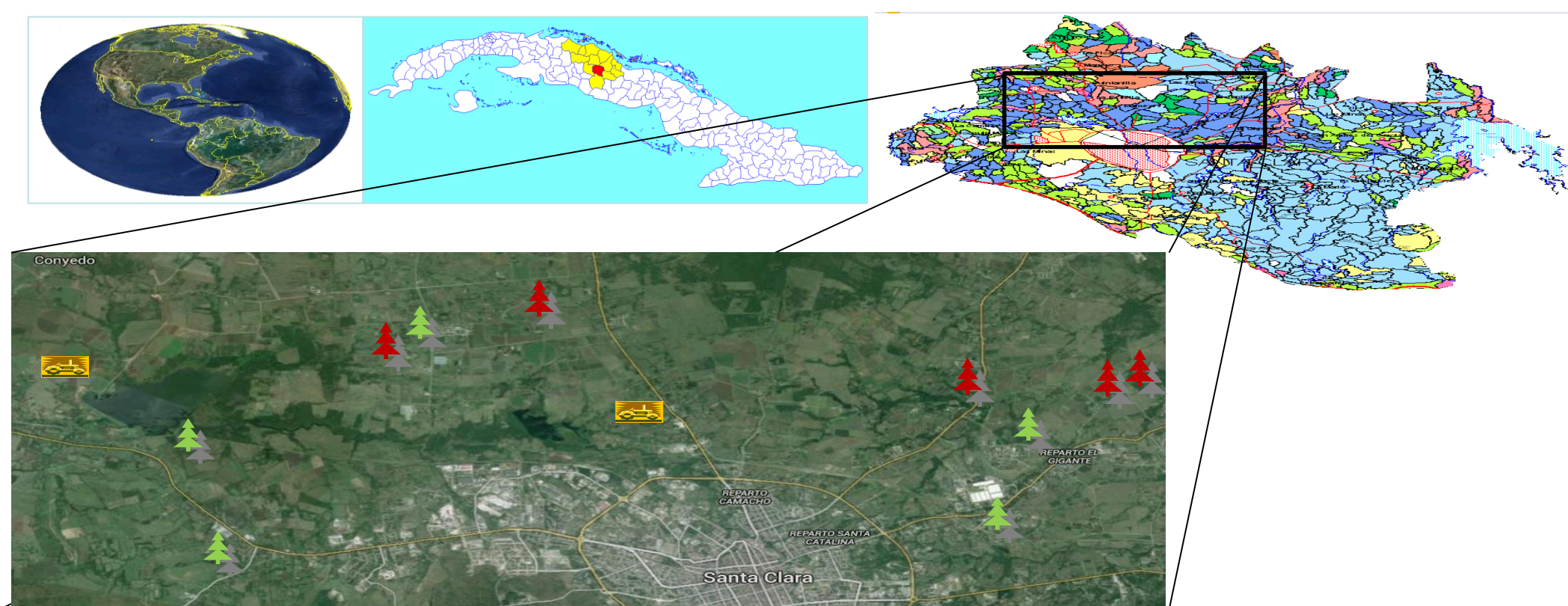
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BACKGROUND

Disease suppressiveness can be viewed as one of the characteristics for determine of healthy soil. From an ecological point of view, soil health implies ecosystem stability, diversity, functional connectedness, and resilience in response to a disturbance or stress. Disease suppression can be viewed as a manifestation of ecosystem stability and health. Previously suggested indicators for to evaluate of soil health and disease suppression have mainly been lists of variables that were correlated to more or less disturbed soils (ranging from conventional and organic agricultural soils) or conduciveness to eradicate disease. In this paper we suggest as indicator for soil health and disease suppression might be found by monitoring responses of *Rhizoctonia solani* in common beans and nutrient availability to the application of a disturbance or stress. This approach illustrated the responses of this fungus with respect to soil management in brown calcareous soil, after incorporation of a crop in this soil. In this research, the incidence was higher when it was incorporated into soil more quantity of external products and disturbance in soils, which depend on soil management in each systems evaluated. Damping-off caused by *Rhizoctonia solani* was less severe in agroecological systems. These results suggest that the proposed approach to the search for indicators of soil health and disease suppression, and resilience to a disturbance or stress, is promising.

MATERIAL AND METHOD



Samples were taken up to 20 cm of soil depth in brown calcareous soil. The selected areas were located in the north of Santa Clara city, with homogeneity of edaphic and climatic conditions, Santa Clara is the capital city of Villa Clara province, Cuba.

Table 1. Select areas for the research

Farming systems	farmers / CCS
Private farms - organic manage (low inputs)	Rubén Torres -CCS Obdulio Morales (3 fields)
	Roberto Marrero (Liborio) - CCS Obdulio Morales (3 fields)
	Omar Zamora -CCS El Vaquerito (2 fields)
	José I. Baracoa - CCS El Vaquerito (2 fields)
	Andrés Ramos - CCS Orlando Hernández (2 fields)
Private farms - onventional manage (high inputs)	Guillermo Sosa - CCS El Vaquerito (2 fields)
	Carlos Hurtado - CCS El Vaquerito (2 fields)
	Orlando Rodríguez - CCS Abel Santamaría (2 fields)
	Michel Morales - CCS 1ro de Enero (2 fields)
	Lázaro Suarez - CCS Orlando Hernández (2 fields)
State farms – conventional manage (high inputs)	Albarrán - EIA "Valle del Yabú" (4 fields)
	Pararrayo - EIA "Valle del Yabú" (4 fields)

RESULTS

EVALUATION OF *RHYZOTOXIA SOLANI* ISOLATE PER FARMING SYSTEMS

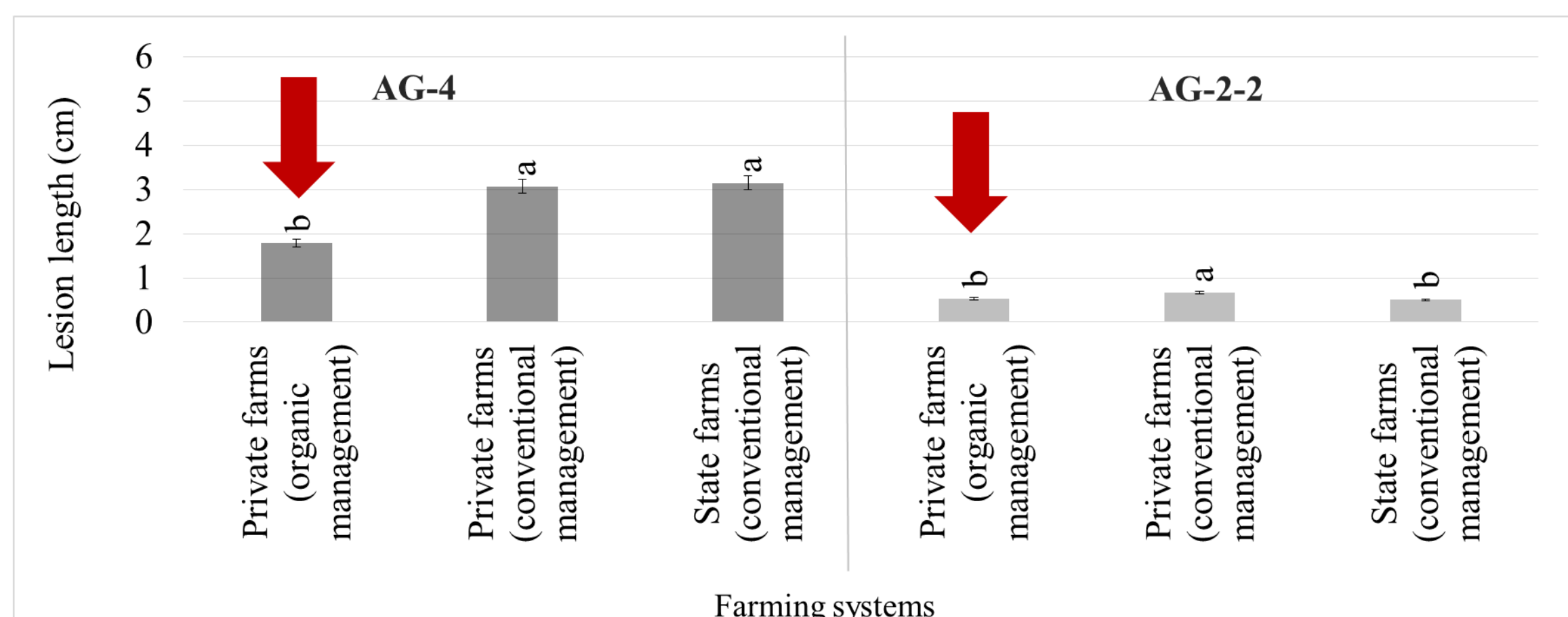


Figure 1. Disease suppression of *Rhizoctonia solani* isolate per systems in Santa Clara municipality. Different letters indicate significant differences among type of technology (P<0.05).

EVALUATION OF DISEASE SUPPRESSION OF AG-4-HGCULT-Rs-36 ISOLATE PER FARMING SYSTEMS

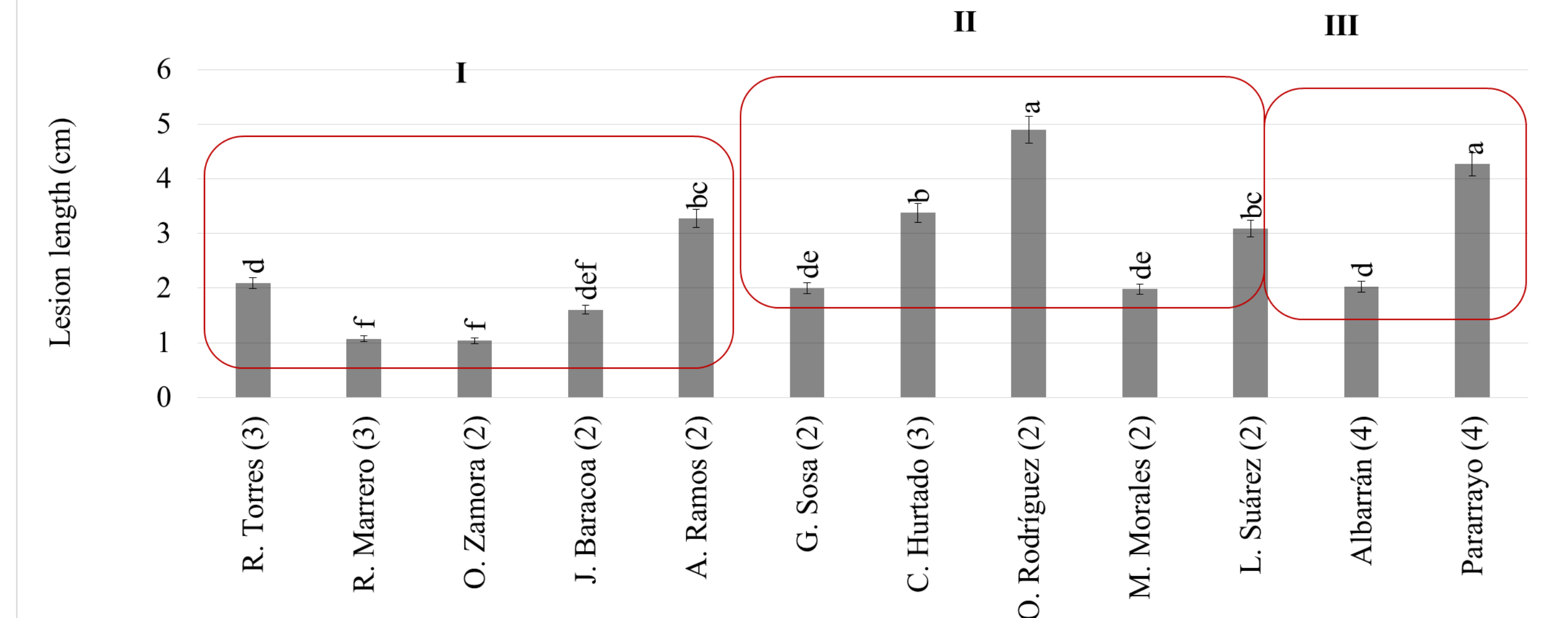


Figure 2. Disease suppression of AG-4-HGCuLT-Rs-36 isolate of *Rhizoctonia solani* per farmers in agroecosystems of Santa Clara municipality. Different letter in the barrier indicate significant differences among each farm (P<0.05). number indicate farms groups with same farming management, (I) private systems with organic manage; (II) private systems with conventional manage (III) state system with conventional manage.

EVALUATION OF DISEASE SUPPRESSION OF AG-2-2CuHAB-Rs-18 ISOLATE PER FARMING SYSTEMS

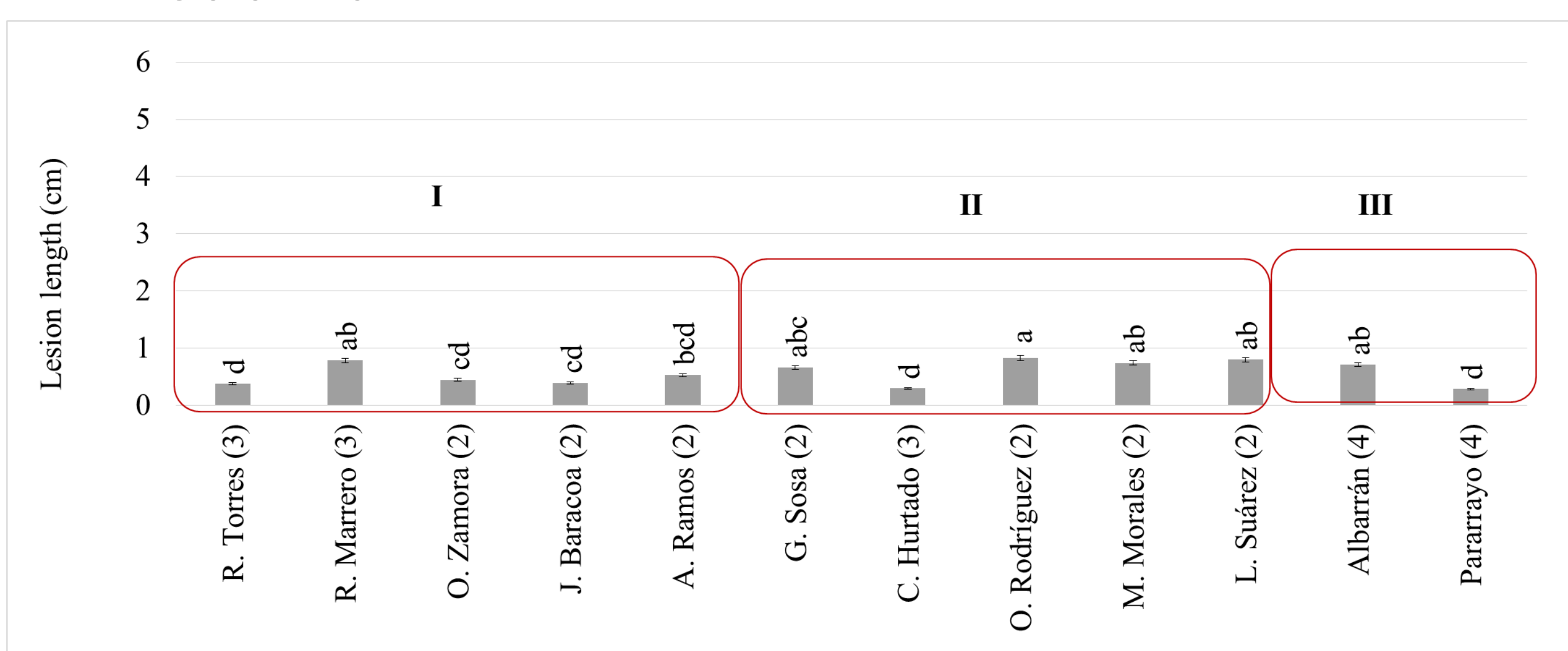


Figure 2. Disease suppression of AG-2-2CuHab-Rs-18 isolate of *Rhizoctonia solani* per farmers in farming systems of Santa Clara municipality. Different letter in the barrier indicate significant differences among each farm (P<0.05). number indicate farms groups with same farming management, (I) private systems with organic manage; (II) private systems with conventional manage (III) state system with conventional manage.

CONCLUSION

Effective control of *Rhizoctonia* in farming systems managed conventionally not has been achieved until this moment and it is required of an understanding of this situation, being shown a suppressive character in soils with organically managed, to differences of soils involved to the conventional management, which was more conducive the development of illness and can be taken for better handling strategies for the control of illnesses.