



**Assessing the adoption of NEWEST rice and
likelihood and extent of gene flow between NERICA
4 and selected rice varieties in Ghana**

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Table of Contents

Declaration.....	ii
Preface.....	v
Abbreviations.....	vi
Abstract.....	vii
Introduction.....	1
Materials and methods.....	4
Study site.....	4
Survey of farmers.....	4
Experimental design and planting materials.....	4
Manual crosses.....	5
DNA extraction.....	6
PCR amplification.....	7
Genotyping.....	8
Data analysis.....	8
Results.....	8
Demographic data of respondents.....	8
Awareness of farmers to GM crops.....	10
Perception statements on GM crops and farmer's degree of agreement.....	11
Farmers degree of agreement to the factors that would hinder the cultivation on NEWEST rice.....	14
Percent seed set among crosses.....	15
Gene frequencies observed among NERICA 1, Togo Marshall and AgraRice at various distances from NERICA 4.....	15
Discussion.....	16
Acknowledgement.....	20
References.....	21

Appendices.....	24
Appendix A: Structured questionnaire administered to the farmers.....	24
Appendix B: 20 SSR markers used to screen parents of the six varieties.....	27
Appendix C: Author Guidelines.....	27

Abstract

- Trials of NEWEST rice are ongoing in Ghana and there is the need to carry out risk assessment on the GM rice before adoption and commercialisation. The objective of this project was to study farmer's perception on NEWEST rice in Ghana. The likelihood and extent of gene flow between NERICA 4 and selected rice varieties in Ghana was also studied.
- 150 farmers were surveyed across five major rice growing areas. To study the likelihood of gene flow, manual crossing was carried out by crossing NERICA 4 with NERICA 1, Togo Marshall, AgraRice, Amankwatia and Jasmine 85 and genotyped using SSR markers. The extent of gene flow was studied by planting NERICA 4, from NERICA 1, Togo Marshall, AgraRice, Amankwatia and Jasmine 85 at 2 m, 4 m, 6 m, 8 m, and 20 m in the field.
- The survey found that 59 % of farmers were not aware of the existence of GM crops. 80 % of farmers were willing to adopt NEWEST rice because it is high yielding. Results of the manual crossing shows that all varieties crossed with NERICA 4 had a degree of success. The seed set ranged from 5- 37.5 %. Gene frequencies observed on the field was 14 % - 100 %. NERICA 4 alleles were found among all the varieties.
- Ghanaian farmers are willing to adopt NEWEST rice due to its potential to increase yield. It is recommended that an isolation distance of 10 m from NEWEST rice should be maintained to prevent outcrossing.

Keywords: NERICA, Outcrossing, GM crops, NEWEST rice.