Organic Agriculture and Climate Change Mitigation

A Report of The Round Table on Organic Agriculture and Climate Change

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CONTENTS

LIST OF FIGURES

LIST OF TABLES AND BOXES

ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of variance
BSI	British Standards Institution
CDM	Clean Development mechanism
CEDECO	Educative Cooperation for the Development of Costa Rica
CERS	Certified Emission Reductions
CMA	Comprehensive meta-Analysis
DEFRA	Department for Environment, Food and Rural Affairs
DOK	Biologisch-dynamisch, Organisch-biologisch and Konventionell
EF	Emission Factors
EU	European Union
FADN	Farm Accountancy Data Network
FAO	Food and Agriculture Organization of the United Nations
FIBL	Research Institute of Organic Agriculture
GHG	Greenhouse Gas
ICEA	Environmental and Ethical Certification Institute
ICROFS	International Centre for Research in Organic Food Systems (Denmark)
IFA	International Fertilizer Association
IFOAM	International Federation of Organic Agriculture movements
IGO	Intergovernmental organizations
ILCD	International Reference Life Cycle Data System

ISO	International Organization for Standards
LCA	Life Cycle Assessment
MRV	Monitoring Reporting and Verification
NAMA	Nationally Appropriate mitigation Actions
NAPA	National Adaptation Programmes of Action
OFA	Organic Federation of Australia
OTC	Over-the-Counter (Carbon market)
PAS	Publicly Available Specification
PLFA	Phospholipid Fatty Acids
REDD	Reducing Emissions from Deforestation and Forest Degradation in developing countries
RTOACC	Roundtable on Organic Agriculture and Climate Change
SALM	Sustainable Agricultural Land management
SEAE	Spanish Society for Organic Farming
SOC	Soil Organic Carbon
SPC	South Pole Carbon Asset management Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon market

PREFACE

During the next decades, billions of people, particularly those in developing countries, will face changes in climate patterns that will contribute to severe water shortages or flooding, and rising temperatures that will cause shifts in crop growing seasons. This will increase food shortages and distribution of disease vectors, putting populations at greater health and life risks. The predicted temperature rise of 1 to 2.5°C by 2030 will have serious effects, especially in terms of reduced crop yield. The productivity of farms is likely to diminish because of climate change, especially in the 40 poorest countries in Africa and Asia. Increased drought periods in many parts of the world and erratic rainfalls will endanger yield stability and put global food production at risk.

As the world seeks solutions for facing the reality of changing climates, the importance of mitigating the effects of greenhouse gas (GHG) emissions becomes increasingly significant, especially in the agriculture sector which both emits and sequesters GHGs. Agriculture causes approximately one-third of global GHGs when direct energy use, emissions from livestock, the production of fertilizers, pesticides, machinery and equipment as well as soil degradation and land-use change for feed production are taken into account.

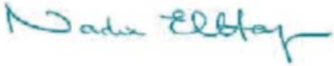
yet, agriculture and, in particular, organic agriculture can be part of the solution to mitigate GHG gases through farming practices that build soil fertility, avoid use of synthetic fertilizer and improve carbon sequestration. The report of the Intergovernmental Panel on Climate Change (IPCC) on the role of agriculture considers many techniques packed into organic management as relevant mitigation and adaption actions, such as the integration of leguminous plants into the crop rotations, excellent soil cover, mixed farming systems and the longevity of ruminants. The Round Table on Organic Agriculture and Climate Change (RTOACC) is a newly launched initiative dedicated to increasing understanding and quantifying the role that organic agriculture can play in climate change mitigation and adaptation – in addition to its already understood contribution in areas such as reducing use of chemical pesticides and biodiversity conservation. Established at the United Nations Climate Change Conference in Copenhagen in December 2009 and supported by the United Nations Food and Agriculture Organization (FAO), RTOACC participants spent their first year engaged in activities such as quantifying the climate benefits of organic farming which can be used for building up carbon-offset methodologies approved for international emission, and developing and improving life cycle assessment (LCA) tools for a better integration of organic farming techniques.

This is not to say that there is a dearth of knowledge on the role of organic agriculture in mitigating climate change. The fact that organic farmers replace synthetic fertilizers with biomass management results not only in enhanced soil fertility, but also increased soil carbon sequestration.

What RTOACC can contribute, through its multi-stakeholder platform, is setting base values so that all future investigation, methodology development and quantification work moves ahead from the same point. RTOACC participants use these base values as a point from which to identify what data is available and what data is missing, to identify current or develop new methodologies that can fill the data gaps, and then to use the new complete data to quantify the mitigation potential of organic agriculture. It is well known that there have been no relevant studies on soil carbon stocks in Africa or South America so further investigation will be required in order to access and incorporate reliable data from those areas. This information not only can enhance climate change mitigation activities which will have broad benefits, it also can provide the data to verify the mitigation benefits of organic agriculture which will allow organic farmers to increase their participation in carbon markets.

Looking to the future, RTOACC is committed to making a concerted effort to disseminate its findings to and through a variety of communication networks. For example, results will be sent to scientific publications to build a broad peer-reviewed knowledge stock that can be taken into account by the IPCC and other relevant scientific institutions; to national GHG inventories to develop management-specific information for their agricultural segments; and to data bases to share the knowledge of specific inputs and techniques of organic agriculture. In addition, RTOACC can share its newly improved or developed methodologies to appropriate entities to facilitate approval of organic practices for the regulated and non-regulated carbon markets.

Looking at the progress made in its first months of operation, RTOACC can look back at a time of fruitful activities and be proud of what its participants have achieved.



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