CANA Project – Logical Framework Matrix

(Final Draft, 30 September 2013)

Intervention Logic	Objectively-Verifiable Indicators	Means of Verification	Risks / Assumptions
Goal / Impacts Adoption of CA among small farmers in North African region is enhanced	I1. At least 10,000 ha per each core country are cropped under the CA system 3-5 years after project closing (this acreage would amount to 30,000 ha per country 10 years after project closing) I2. At least 50% of the CA adopting small farmers have reported an increase of at least 180 AUD per hectare of cereal crop (wheat or barley) 3-5 years after project closing. I3. At least 50% of soils hosting CA system in the 3 core countries have improved stature against wind and water erosion (run off)	I1. Impact Evaluation study report I2. Impact Evaluation study report I3. Impact Evaluation study report	• Farmers are willing to relinquish their long-standing practice of using all of their stubble and crop residues for livestock feeding.
Purpose / Outcomes Capacities of NARES in the 3 participating countries to promote CA technical and socio-economic options and enhance their adoption among small farmers in the region are strengthened	1. At least 1,000 small farmers among the project direct beneficiaries have adopted a CA cropping system (correct and regular application) at project closing (300 in Yr 1; 600 in Yr 2; and 1,000 in Yr 3) 2. At least 5,000 small farmers among the project indirect beneficiaries have adopted a CA cropping system (correct and regular application) at project closing (1,000 in Yr 2; 2,500 in Yr 3; and 5,000 in Yr 4) 3. At least 50% of the project (direct and indirect) beneficiaries have declared a perception change (from negative to positive perception) about the CA system at project closing.	1. Yearly monitoring forms Annual progress reports 2. Yearly monitoring forms Annual progress reports 3. Adoption study report	• Private sector enterprises consent to collaborate with the project in producing low-cost, small size and simple technology no-ill (or ZT) seedling machinery • Adequate herbicide systems are available on the local markets at the right time.
Outputs 1. Major technical and socioeconomic constraints to CA adoption by small farmers are identified	1a. A baseline study report based on a household survey of at least 100 farmer-households in each platform is validated by the end of Year 1 of the project 1b. An agro-ecological characterisation study report for each platform is validated by the end of Year 1 of the project 1c. A typology of production systems report including a similarity analysis is finalised by the end of Year 2 of the project 1d. A policy & institutional set-up review for each core country including working recommendations is finalised by the end of Year 2 of the project	1a. Baseline study reports of 3 platforms Annual progress report (Yr 1) 1b. AEC study reports of 3 platforms Annual progress report (Yr 1) 1c. Typology report Annual progress reports (Yrs 1 & 2) 1d. Policy and institutional review report Annual progress reports (Yrs 1 & 2)	• Sufficient inter-institutional socio-economic human resources can be committed to the project

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2. Low-cost small size and simple technology no-till (or ZT) seeding machinery is made available.	2a. A new ZT seed drill prototype to meet key specifications identified in the target platforms is tested by the end of Year 2 of the project 2b. A field performance assessment of different ZT seed drill options for successful crop establishment in the 3 platforms is conducted annually from Year 2 to Year 4 2c. At least 2 local manufacturers are engaged by the project in the development and manufacture of low-cost appropriate ZT machinery options by the end of Year 3 of the project 2d. An economic and investment opportunities assessment of the new ZT drills in the 3 platforms is available in early Year 4 of the project	2a. New ZT drill prototype Prototype test report Annual progress reports 2b. Annual platform data sets Farmer evaluations of drill options Annual progress reports (Yrs 2, 3 & 4) 2c. Agreements signed by manufacturers Annual progress reports (Yrs 2, 3 & 4) 2d. Cost-benefit analysis reports Business plans for investment Annual progress reports (Yrs 3 &4)	• Private sector enterprises consent to collaborate with the project in producing low-cost, small size and simple technology no-ill (or ZT) seedling machinery
3. Appropriate weed management and crop-livestock integration practices are developed	3a. Options for an integrated weed control management at the farm level with consideration of herbicide resistance and adequate application are developed by the end of Year 3 of the project 3b. Options for crop diversification (including forage crops) and a crop sequence to enhance diversification and sustainable productivity are developed for each platform by the end of Year 3 of the project 3c. At least one decision tool/model for crop monitoring and risk management is validated by the end of Year 3 of the project 3d. A set of alternative integrated feeding options (including forage crops) is developed by the end of Year 3 of the project 3e. The profitability and productivity of integrated crop-livestock production systems under CA is evaluated by the end of Year 4 through the use of decision support and modelling tools	3a. Study reports on weed dynamics Weed management guide On-farm researcher-managed trials Farmer-managed trials Annual progress reports (Yrs 1 to 4) 3b. Research reports on crop sequence On-farm researcher-managed trials Farmer-managed trials Scientific publications Annual progress reports 3c. Research reports on decision tools Scientific publications Annual progress reports 3d. Research reports on feeding options Scientific publications Annual progress reports 3e. Research reports on profit./productivity Scientific publications Annual progress reports	•
4. A NARES capacity development plan for CA promotion is implemented in each participating country	4a. 3 raising awareness workshops are yearly organised in each participating country by the end of Year 3 of the project (1st WS at project start-up; 2nd WS in mid-growing season; 3rd WS in a field visit at end of season).	4a. Annual progress reports	•

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	4b. Up to 15 scientists/extensionists/farmers from the region visit Australia before project closing (3 in Yr 1; 6 in Yr 2; 3 in Yr 3; and 3 in Yr 4) 4c. At least 5 field days/farmer field schools per platform are yearly organised (FFS 1 on ZT machinery and planting & crop establishment; FFS 2 on IPM; FFS 3 on crop & soil management and risk management; FFS 4 on residue management and crop/livestock integration; and FFS 5 on crop diversification and rotation) 4d. At least 5 brochures covering different subjects on CA are published before project closing	4b. Visit reports Annual progress reports 4c. Annual progress reports 4d. Published brochures Annual progress reports	•
5. A CA regional hub is developed around the ICARDA regional office in Tunis	5a. 7 Australian scientists visit the region before project closing (1 in Yr 1; 2 in Yr 2; 3 in Yr 3; and 1 in Yr 4) 5b. At least 15 scientists/extensionists and 12 farmers have participated in the inter-regional visits organised by the project before project closing 5c. The project membership is extended to Libya ad Mauritania before the end of Year 2 5d. A regional final workshop on CA is organised before project closing 5e. Un site web of the CA North Africa Network is functional before the end of Year 3 of the project	5a. Visit reports Annual progress reports 5b. Annual progress reports 5c. Letters of mutual agreements Annual progress reports 5d. Regional workshop proceedings Annual progress report of Year 4 5e. Contract of a service provider Site web on Internet Annual progress report	•
6. The project is efficiently managed by a project management unit (PMU) established in the ICARDA regional office in Tunis-	6a. An annual work plan is yearly validated by the Steering Committee 6b. An annual progress reports is yearly validated by the Steering Committee 6c. At least 80% of the monitoring activities registered in the validated M&E plan are conducted according to schedule 6d. A CA adoption study is conducted at the end of the project 6e. A study on farmer perception on CA system is conducted at the end of the project	6a. Annual work plans 6b. Annual progress reports 6c. Annual progress reports 6d. Project effects evaluation study report Annual progress reports 6e. Farmer perception study report Annual progress reports	•

Intervention Logic

Activities

A1.1 Characterise the 3 platforms
A1.2 Conduct similarity studies within country and across the region
A1.3 Study farmers behavioural change
A1.4 Analyse constraints to adoption of CA systems in the 3 platforms
A1.5 Undertake a household survey to assess economic, environmental and social impact
A1.6 Conduct ex-ante evaluation of socioeconomic & environmental impacts
A1.7 Investigate enabling policy & institutional options for CA

A2.1 Conduct an international inventory of suitable low-cost ZT seeders
A2.2 Acquire relevant seeder technologies for performance benchmarking
A2.3 Review existing conventional drills and power source in the target platforms
A2.4 Develop example conversion solutions to enable ZT seeding
A2.5 Design/manufacture a simple ZT drill prototypes with local manufacturing partners
A2.6 Assess field performance of the range of ZT drill options over various soil, residue and crop conditions with farmers' participation
A2.7 Engage local manufacturers and importers in the supply of low-cost ZT seeder options
A2.8 Assess economic & investment opportunities of the new ZT seed drills in the 3 platforms

A3.1 Study the dynamics of weed
A3.2 Develop an integrated weed control management system for CA
A3.3 Test crop sequence options for diversification enhancement and sustainable productivity
A3.4 Assess soil quality/health under CA system
A3.5 Assess soil water productivity under CA system
A3.6 Test decision tools/models for crop monitoring and risk management
A3.7 Assess tech. & eco. trade-offs between surface cover & animal productivity
A3.8 Develop alternative integrated feeding options
A3.9 Evaluate profitability/productivity of integrated crop/livestock systems

A4.1 Raise awareness on CA system benefits and shortcomings among different stakeholders (farmers, manufacturers, NGOs, decision-makers, etc.)
A4.2 Conduct on-job training for all stakeholders
A4.3 Organise technical & scientific support, and exchange of visits to upgrade CA national expertise with Australian experience
A4.4 Conduct farmer field schools (FFS) to enhance stakeholder co-learning & F2F innovation
A4.5 Enhance knowledge sharing & dissemination through different media

A5.1 Reinforce NGOs/Associations in CA area
A5.2 Organise regional activities to promote CA networking within the region
A5.3 Establish CA regional hub in Tunis
A5.4 Strengthen the North African CA regional hub

A6.1 Draft project management project documents (annual work plans, annual progress reports, etc.)
A6.2 Organise regional activities/meetings of the project (RCP meetings, SC meetings, regional workshops, etc.)
A6.3 Reinforce communication with the Project National Coordinators and the ICARDA RO in Tunis
A6.4 Implement the M&E plan
A6.5 Analyse adoption degree and rate at the end of project
A6.6 Study farmers' perception of CA system at the end of project