

Sowing seeds of resilience, saline agriculture for global food security

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why focus on saline agriculture?

- around 1 billion (!) hectares salt-affected
- plus 2000 ha every day
- for 1.5 billion people food security and livelihoods under pressure
- salinity = soil degradation, low yields, low income, poor nutrition (health), migration,....

ensure solutions reach farmers!









The Salt Doctors -who we are-





19 countries

>1000 hectares cultivated >1400 people trained

53 projects Independent social enterprise, implementation partner for:

- salinity assessments
- research, training, capacity building
- design and implement farming systems for saline conditions





Effects of improved variety and cultivation

Kenya 2018

Bangladesh 2017-2019



Result: 94% yield increased, moderately saline



new crop cultivation in dry season

Implementation: potato production under saline conditions

Pakistan 2016-2017

Egypt 2020-2021







Results: 32 ton/ha, ECe 5-6 dS/m



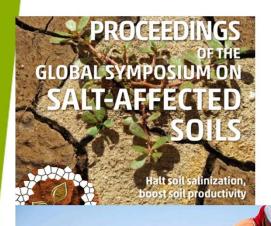


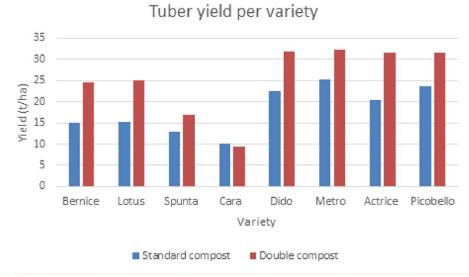
Delphy





Economic analysis potato cultivation under saline conditions (Egypt)





cobello		27,4 54,4	
		33,6	
Metro		Actrice	Picobello
E	GP	EGP	EGP
10.189,	97	16.557,56	11.343,73

Increase double compost (%)

> 63,7 63,9 30,9

> -8,8 41,0

Difference in profit (double-								
standard)	Bernice	Lotus	Spunta	Cara	Dido	Metro	Actrice	Picobello
	EGP	EGP	EGP	-EGP	EGP	EGP	EGP	EGP
Per feddan	14.340,86	13.975,62	2.736,89	6.663,77	17.059,78	10.189,97	16.557,56	11.343,73
Percentage								
change	27%	64%	8%	-17%	88%	76%	77%	60%





Implementation in coastal Bangladesh 2017-2019









Establishment of a test facility, testing the salt tolerance of local crops. Training of trainers, 200 lead farmers, 5000 community farmers. Providing knowledge, skills and seeds to farmers



Results

Future of sustainable agriculture in saline environments

-after 2 years, based on independent project evaluation-260 random surveys from 1920 group farmers and 80 lead farmers



- Food security increased from 15% to 65%
 - · Based on Household Food Insecurity Access Scale-0 (full food security)
- Use of salt affected fallow land increased from 0% to 76%



average household income increased by 34%

De Vos et al., 2021

- Percentage with more than 100 euro increase:
 - · 55% for lead farmer, 4% for group farmer
- Employment increased by 10% for lead farmer, 41% for group farmer



- Vegetable consumption (150 g/day, 10 months/year) increased from 26% to 74%
- Household improved dietary diversity increased from 75% to 100%







- Women with improved skills for sustainable food production increased from 9% to 79%
- Access to land for women increased from 4% to 87%







POSTCODE LOTERU

Integrated solutions: Agroforestry



"Aquaforestry" Kenya: combining agroforestry with rainwater harvesting, hydroponics and fish farming



Early 2020



Late 2023









Integrated solutions: Agroforestry

"Aquaforestry" Kenya: positive cash flow shortened from 12 years to 6.5 years

AQUAFORESTRY KENYA														
MULTI YEAR OVERVIEW AQUAFORESTRY														
	Simplified bu	idget: tree p	lanting can to	ike place ye	early and nun	nber of fish	and NTFP	can increase	via additio	nal investm	ents and out-g	rower progra	mme	
GROSS MARGIN PER ACTIVITY (REVENUES MINUS DIRECT COSTS)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Total	% REVENUES
RESULT AFRICAN CATFISH*	-5.960	38.258	38.258	38.258	38.258	38.258	38.258	38.258	38.258	38.258	38.258	38.258	414.882	25%
RESULT HONEY	-15.000	4.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	8.000	69.000	4%
RESULT TIMBER**	-19.950	-2.745	-2.745	-2.745	58.505	-2.745	-2.745	-2.745	-2.745	-2.745	-2.745	522.255	536.107	32%
RESULT PES	-7.100	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	0	0	82.900	5%
RESULT AGROFORESTRY TREE CROPS	-19.950	-2.745	-2.745	14.090	35.965	57.840	79.715	79.715	79.715	79.715	79.715	79.715	560.747	34%
TOTAL GROSS MARGIN	-67.960	46.769	50.769	67.604	150.729	111.354	133.229	133.229	133.229	133.229	123.229	648.229	1.663.636	100%
GENERAL PROJECT MANAGEMENT AND ADMINISTRATION	22.356	22.356	22.356	22.356	22.356	22.356	22.356	22.356	22.356	22.356	22.356	22.356	268.274	
INTEREST***	6.000	6.000	6.000	6.000	6.000	6.000							36.000	
DEPRECIATION	20.075	20.075	20.075	20.075	20.075	20.075	20.075	20.075	20.075	20.075	20.075	20.075	240.900	
EBIDTA	-64.241	50.488	54.488	71.323	154.448	115.073	130.948	130.948	130.948	130.948	120.948	645.948	1.672.262	
ACCUMULATED CASH FLOW	-76.241	-37.754	4.734	64.056	206.504	309.577	440.524	571.472	702.419	833.367	954.314	1.600.262		
RESULT BEFORE TAX AFTER DEPRECIATION AND INTEREST	-94.035	20.694	24.694	41.529	124.654	85.279	113.154	113.154	113.154	113.154	103.154	628.154	1.386.736	
PAYBACK PERIOD EXCLUDING LAND AND GENERAL INFRA		5.5 years		*)	Only one c	ycle with	low stocki	ng density	in year 1.	Increased s	tocking den	sity from yea	ır 2	
PAYBACK PERIOD INCLUDING LAND AND GENERAL INFRA		7 years		**)	One cycle o	f50,000	including	replanting	20% in ne	xt year				
					Year 5: Thinning 50% 7 EUR per tree									
					Year 12: Tr	ees sold a	t 70 EUR v	vith 10 eur	o harvesti.	ng and ha	ndling costs	(timber prov	cessing not i	ncluded here)
***) LOAN 3%/yr	200.000													

Results so far:

- yield increase of 42-94% possible
- introduce new crop season (in dry, saline season)
- increase income for farmers 34-88%
- impact on SDG, capacity building takes 2-4 years
- impact on landscape level, community level, soil fertility, agroforestry, 6-10 years
 - > safeguarding long-term profitability, enhanced livelihoods, food security, improved environmental sustainability,....









Our ambition; the "10-10 plan"

Achieving impact on a global level by enabling farmers to adapt to the ever-increasing salinity levels



10 countries, 10 years

Creating global impact by:

- 10 living labs, global community of practice
- strategies to optimize use of salt-affected land and saline water
- "best practice" for various climate zones and salinity levels
- hands-on training for farmers, digital solutions
 - showcase clear market opportunities for farmers, cost-effective solutions, business cases for saline agriculture (public-private partnerships)

>10.000 hectares cultivated

The time to act is now. We appeal to governments, development banks, NGO's, philanthropists and stakeholders to invest in our 10-year plan



Together, let's cultivate a future where food security is assured, communities thrive and our planet flourishes!

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Thank you!



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