

Summary of Country Reports

Summary of Country Reports

Argentina

Management of Salt-Affected Soils of the Lower Valley of the Colorado River (LVCR), Argentina (J. C. Gasparoni, R. A. Rosell, R. Sanchez, J. A. Galantini and O. Svachka)

The report presents the results of the follow-up of previous studies on the rehabilitation of salt affected soils widespread in the LVCR, using treatments with several biological and chemical amendments. A new open ditch drainage system was constructed in order to eliminate the influence of high water table. The annual changes (from 1991 to 1996) of the electrical conductivity (EC) and exchangeable sodium percentage (ESP) values show a significant decrease, i. e. soil improvement after using any or various of the following treatments: efficient, active drainage system; rainfall leaching in humid and/or wet years; leaching with water from the Colorado river; cropping of barley and using it as green manure; surface soil application and disking in sulphur and/or gypsum.

With good drainage system and abundant amount of leaching/irrigation water, the reclamation of these soils is possible. However, the effect may only be temporal and is the consequence mainly of the favourable water regime (rainfall+irrigation) and drainage conditions. Dry years and the lack of irrigation may partially reverse the described situation.

Brazil

Management of Salt Affected Soils of the Middle São Francisco River Valley (G. G. Cordeiro and L. B. Morgado)

The first experiment of the project: "Integrated Management Aiming Sustainable Use of Salt Affected Soil" was carried out in an area of salt affected soil without drainage (District of Manicoba, in Juazeiro). The EC value of the soil saturation extract varied from 9.0 to 20.0 dS/m. The aim was to evaluate the effect of integrated soil management on the yield of tomato (*Lycopersicon esculentum* L.). The variables studied were: 1. frequency of irrigation, 2. organic matter, 3. mulching, 4. deep plough and 5. Sper salt (polimaleic acid). The treatments were different combinations of the variables. The results showed: the total yield, commercial yield and yield of fruits with blossom-end root varied from 3.8 to 25.3, 2.1 to 21.6 and 1.5 to 6.7 tons/ha respectively; no significant difference was observed among the treatments; the lack of artificial drainage has a negative effect on crop yield, and strongly contributes to the increase of soil salinity.

The objective of the second experiment: "Use of Saline Water and Soil Conditioning in Beetroot Crop" was to evaluate the effects of different levels of salt in the irrigation water and application of soil conditioner Sper salt on the yield of beetroot (*Beta vulgaris*). The results show that the salinity of irrigation water affects the yield significantly. However there was no significant difference among the treatments with more concentrated waters, showing the high tolerance of beetroot to saline water. Soil conditioning can be efficient only with the use of irrigation water having low level of salt concentration.

Canada

Salinity and Sustainable Agriculture on the Glaciated North American Prairies. Contribution from the Prairie Salinity Network (H. Steppuhn, H. VanderPluym, R. Eilers, W. Eilers, J. Holzer, W. Stolte and D. Wentz)

The approach to solving dryland salinity problems promoted by the Prairie Salinity Network has been: (1) to define and assess the problem, (2) to understand the physical nature of the problem and (3) to recommend an ameliorating strategy to address the problem. New techniques in all three steps are beginning to aid technical specialists in helping farmers battle salinity. Satellite geo-positioning systems and non-contact geophysical instrumentation have been combined to better define salinity; mathematical models are proving valuable in understanding the salinization processes; and, new insights into the effects of salinity on plant responses point to emerging techniques and salt tolerant crop varieties to ameliorate salinity damage. Members of the Prairie Salinity Network are active in all three steps.

Egypt

Sand Dune Protected Agriculture in North Coast of Egypt (A. F. Abou-Hadid)

Protected cultivation proved to be a suitable agricultural technique and an economical tool to successfully utilize the saline north coasts of Egypt.

The experiment carried out in El-Bosaily greenhouse is an example of economically feasible sand dune agricultural technique. The salt marshes were covered with sand from the dunes, levelled after installing a proper drainage system at a depth of at least 75 cm. Drip irrigation system was installed with fertigation equipment. Plastic houses were constructed and covered with polyethylene. Water requirements were calculated and applied as needed to tomato plants.

The water use efficiency was over 15 kg tomato/m³ of water compared to only 1.6 kg on the field.

The us experience along the element in water restrated.

Hungary
Integrated Affected S
M. Rédy, I

Within l
ject, two n
long-term
of surface
40, 50, 70,
CaCO₃ an
sprinkling
2) monitor
salinization
perimental
clussions ca
a) Und
stances, t
strongly sa
rational and
similar terri
b) Thi
can be rat
tively smal
geneous cr
c) Partic
tion of salir
gree and t
quirement
monitoring
water reso
warning of

Italy
Irrigation v
Regions: S
(G. Crescin

Assessi
soil structu
prevention
and finding
aimed to p
fication.

The obje
the relevan
ductivity du