FORESTS AND SOCIETY: THE ROLE OF RESEARCH

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conditions of evolutionary functions of landscapes regeneration that is self-regulating and self-rehabilitation with gradual increase of bioecological potential of their natural and changed by man structural components.

Forest melioration plays the main part in the restoration of disturbed relations between natural complexes (forests, arable lands, meadows, water objects), because different spatial forms of shelter belts and their density determine both the landscape structure and homeostasis on the whole. The main tasks of the forest melioration are: to determine the initial and the further notions about necessary and optimal participation of its objects in the site and area structure; to ground the quantitative parameters of the forest meliorative objects on the first stages of the landscapes restructurization; to develop the effective spatial, special, functional & purposal and other kinds of forest meliorative stands, which would promote the increase of biodiversity and saturation of landscapes; use of the forest melioration must take into account not only ecological & economical sense, but also social meaning and correspond to aesthetic demands.

It is already proved that meliorative stands with stable signs of system and with area more than several thousands of hectares can carry out the transgressive functions and regulate the climate. Particularly precipitation increases 15% and productivity of agrocenosis increases 15-35%. There is any alternative to forest melioration by its useful properties. Therefore in the conditions of climate aridization and global warming the meaning of forest melioration as a factor of agrolandscapes stability will grow significantly.

8.02.00 Sites

Effect of timber tree residue and its compost application on growth of some local trees in Egypt

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Keywords: compost; residues; eucalypt; *Casuarina; Acacia*; bark; leaves

The main objective of this study was to find the best way for using disposal wood wastes into organic manure (compost) for increasing the economical return. The experiment was designed to study the effect of different soil treatments which containing timber trees residues such as using wastes directly in cultivation, wastes with add nitrogen, and composted wastes.

Wastes were mixed with each of clay and sandy soils in the ratio 1:1 to study the effect of different soil treatment on plant parameters. The results can be concluded that the utilization of compost of sawdust, bark and leaves after mixing with sandy and clay soils for eucalypt, casuarina and acacia plantations as a growth media is recommended than sawdust, bark and leaves added directly or sawdust, bark and leaves with nitrogen (ammonium sulfat)

On the other hand, utilization of leaves after mixing with sandy or clay soil as a source of soil medium without any treatments for eucalypt, casuarina and acacia plantations is recommended because its superiority to the control.

Fertility status of hill forest soil of the south eastern part of Bangladesh

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Keywords: forest soil; soil fertility; soil degradation

The forest resources of Bangladesh have been severely depleted. There exists a high potential to increase forest resources in the hilly areas of the southeastern part of Bangladesh. The soils of hilly areas are being degraded and deteriorated with time and consequently the soils are becoming less suitable to support forest trees and agricultural crops. In order to prevent and limit the degradation of these hill soils and for keeping the soil fertility to its optimum level very limited soil study was done. For evaluating the present fertility status of the area recently (1998) a study on the physico-chemical properties of the soil was carried out. It has been found that the nutrient elements in the soil have decreased substantially from the previous study results. The pH of soils have decreased during the 10 years period (1988-1998) resulting higher acidity. The reasons responsible for increasing of soil acidity and lowering of soil fertility may be due to (a) destruction of forests and removal of vegetation resulting in exposure of the soil surface which is then oxidized and consequently increased the soil acidity and (b) soil erosion due to run off washed away the top soil containing high organic matter and nutrients.

Study of nutrient deficiencies of sandy soils in the Congo by pot experimentation: effects of the site

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Keywords: *Eucalyptus*; coppice silviculture; production

Since 1978, 42,000 ha of clonal *Eucalyptus* plantations have been established in the Pointe-Noire region for pulp production. These plantations, owned by ECO sa (Eucalyptus du Congo Société Anonyme), are based on two natural hybrids (E.PFI and E.12 ABL* saligna). As felling age is 7 years, management of coppice appeared very early as a main issue. More than 10 trials focusing on this goal were therefore established since 1985. Moreover, complementary experiments were set up to compare coppice and replanted sites production.

Coppice silviculture: The trees can be cut at ground level, without impact on latter coppice production. From 4 months after cutting, there are marked differences in growth between coppice shoots. These differences increase with age: from 2-3 years, only the two bigger shoots per stump (70% of total basal area) keep on growing. Coppice reduction increases growth of the remaining shoots. This operation can be done during the first year, as soon as the dominant shoots can be identified (4-9 months old).

Optimal coppice reduction intensity depends on soil fertility and stump density: as observed with planted crops, the maximum production is obtained, between 600 stems/ha in the low fertility sites and 800 stems/ha in the best sites. As initial stand densities vary between 400 to 800 stems/ha, 1 to 2 shoots per stump are selected. Secondary coppice shoots have to be controlled, manually (bush knife) or chemically using glyphosate (Roundup®). This last manner allows weed control at the same time, and thus, lower costs. It provides the best results for shoot control and stem growth.

A fertilization of 200-250 kg/ha N-P-K (13-13-21) must be applied one year after the harvesting of the previous stand (planted crop or coppice).

Coppice vs replanted sites: Coppice stumps can be weakened with a 40% glyphosate solution (Roundup®). The solution must be applied by spray at a dose of 25-30 ml/stump, just after stem harvest (less than one hour). No return time is then necessary.

A site replanted with the previous clone exhibits about the same MAI as coppice. Moreover the loss of production during the period between harvesting and planting must be taken into account. It appears therefore that a plot may be replanted only if a much better vegetal material can be used (*E. urophylla* * *E. grandis* vs natural hybrid,...).

Conclusion

These results contribute to efficient management of the Congolese commercial plantations consisting at present of 13,000 ha of planted crop, 19,000 ha of coppice and 10,000 ha of replanted sites.

Forest regeneration utilizing mulching sheets and symbiotic microorganisms

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Keywords: mulching sheet; symbiotic microorganisms; *Pinus thunberghii* Parl., *Pinus densiflora* Sieb. et Zucc., *Pisolithus tinctorius* Coker et Couch *f. tinctorius*; forest regeneration

In order to investigate the possibility of utilizing a combination of a mulchingsheet (MS) composed of polyester random fiber web as the main material and mycorrhizalfungi (MF), effects of their utilization were surveyed for 3-5 years on the growth of *Pinus thunbergii* Parl. and *P. densiflora* Sieb. et Zucc. at model and actual slopes.At plots where spores of *Pisolithus tinctorius* Coker et Couch *f. tinctorius* (Pt) were dispersed as MF and MS were applied after *P. densiflora* was seeded, the stem diameter at ground level and planting stock height showed greater values from the first year, compared with those at control plots.

The growth at the experimental site belonging to Ehime University where seeds of *P. densiflora* were incorporated into the MS showed greater values of stem diameter at ground level and planting stock height from the first year, compared with those at control plots. MS were stuck at the site where 5 years had elapsed after *P.thunbergiiwas* planted at Mt. Tanakami in Ohtsu, Shiga. An increase of 66-494% was shown in the stem diameter at ground level and tree height of *P. thunbergii*, compared with those of control plots during 5 years.

At the Nojiri River experimental site on Sakurajima Island in Kagoshima where *P.thunbergii* of a two year-old planting stock was planted after MS were