



Extractive activities, mines, quarries and landfills

### Naturalistic Hydroseeding

- Gianluigi Pirrera Civil engineer (Esperto di Ingegneria Naturalistica),  
Vice-president AIPIN<sup>1</sup>, [jl.mine@libero.it](mailto:jl.mine@libero.it)
- Giuliano Sauli Degree in Natural Science (Esperto di Ingegneria Naturalistica),  
President AIPIN<sup>1</sup>, [sauli@sauli.info](mailto:sauli@sauli.info)
- Roberta Calvo PhD student – University of Palermo.  
Regional Board Member AIPIN<sup>1</sup>-SICILIA, [roberta.calvo@unipa.it](mailto:roberta.calvo@unipa.it)
- Filippo Amato Botanist, PhD, Member AIPIN<sup>1</sup>  
[filippoamato.studio@gmail.com](mailto:filippoamato.studio@gmail.com)
- Francesco D'Asaro Full professor – University of Palermo, member AIPIN<sup>1</sup>  
[francesco.dasaro@unipa.it](mailto:francesco.dasaro@unipa.it)

(1) Associazione Italiana per l'Ingegneria Naturalistica (AIPIN)

keyword: hydroseeding, native plants, biotechnical value.

### Abstract

The applications usually want to restore an adequate level of vegetation cover, to contrast effectively erosion and slope instability, however, often neglecting the naturalistic appearance. Really we should combine the technical aspect with the naturalistic, aiming to eliminate non-native species from vegetation context and to guide the choice of usable herbaceous species. The study, carried out in a dump of a southern Italian town (Termini Imerese - Sicily), provided for the reconstitution of plant cover of 7.4 hectares through hydroseeding applied directly on the soil of the final covering, with waste often exposed. The aim of this study was the use of alternative hydroseeding with the use of native plants for the recovery of the vegetation cover and increase the biodiversity of the intervention zone. So have been selected 21 species with high biotechnical value: Graminaceae species (genus: *Ampelodesmos*, *Oryzopsis*, *Cynodon*, *Festuca*, *Brachipodium*, *Lolium*, *Lygeum*) and Leguminosae species (genus: *Hedysarum*, *Lotus*, *Medicago*). In addition, were used seeds of wild flowers, fertilizers, mulch of wood fiber and cellulose, organic and synthetic adhesives. Moreover, a search was conducted on the morphology and resistance to tensile efforts of the roots of three species of referring: *Ampelodesmos mauritanicus* (Poir.) Dur. & Schinz, *Oryzopsis miliacea* (L.) Asch. & Schweinf and *Hedysarum coronarium* L. The first results confirm that the natural hydroseeding with native plants creates an effective plant cover in deprived areas; it also helps increase biodiversity. Therefore, the methodology used appears to be a more sustainable alternative to traditional hydroseeding using a mixture of commercial seeds and nationality is in doubt. The validity of the approach is also confirmed by the good results of biotechnical reference species both in terms of speed of growth, that of radical density (RAR) and the tension breaking roots.

