

ENASGIPS – User Experiences

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Introduction

OECD's ENASGIPS tool is a module in the new harmonized terrestrial field dissipation guidelines (as of January 2016). It is a GIS based application that enables users to quickly determine if test sites located in a particular ecoregion have similar ecoregions existing in Europe or North America. By demonstrating similarity, it may not be required to conduct additional studies to achieve registration. ENASGIPS uses long-term annual total rainfall, average precipitation, soil texture, soil pH and soil organic matter to calculate a similarity index. Since not all previously listed parameters may influence chemical behaviors, it has been successfully argued for the inclusion of a weight-of-evidence approach in which the user selects just the parameters that affect their chemical. The selection of just a few variables has a significant impact on the results defining the conceptual model of the pesticide's behavior. Therefore, variable selection is critical. ENASGIPS can also be used by non-GIS experts to quickly select locations based on given selection criteria. The site selection module in ENASGIPS will do this. Executing the tool is easy, however, selecting the ranges to determine which areas are applicable. The input ranges change based on the question asked and how strict a user wants to be.

OECD ENASGIPS Model

The Ecoregion Crosswalk consists of a GIS-based model, ENASGIPS (Europe-North America Soil Geographic Information for Pesticide Studies) with the following components:





land covered by crop) for Canada, United States

similar soil and climate using a ecoregion similarity model

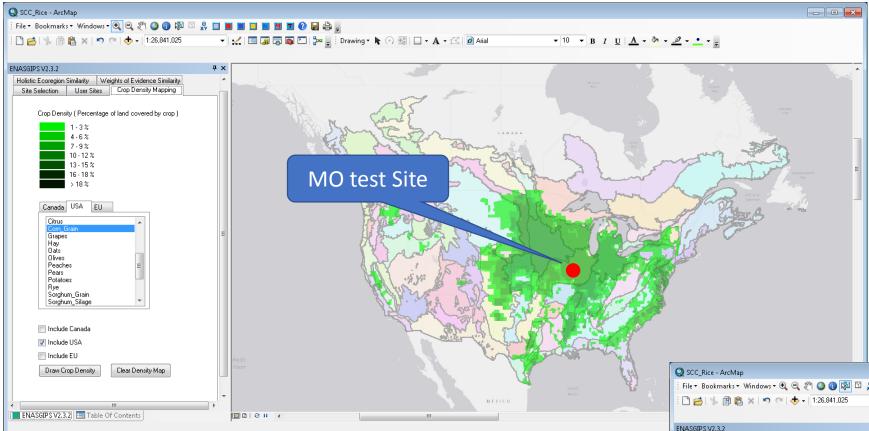


A geographic database of soil, climate and crop information

ENASGIPS Model Use

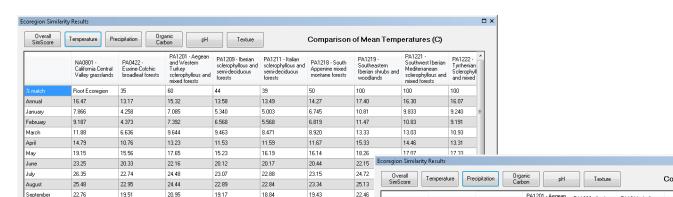
ENASGIPS can help risk managers determine which ecoregions in Europe have similar conditions as test sites in North America and potentially limiting the number of field trials to be conducted in Europe. An example is shown for maize.

1. Crop density map for maize in the US with corn TFD test site.



Selecting TFD test locations

- The test location has significant impact in the results from the ENASGIPS model.
- Some ecoregions (e.g. California Central Valley), provide a broad coverage for many different crops and ecoregion, whereas test sites in the southeastern US, typically have no matching EU ecoregions.



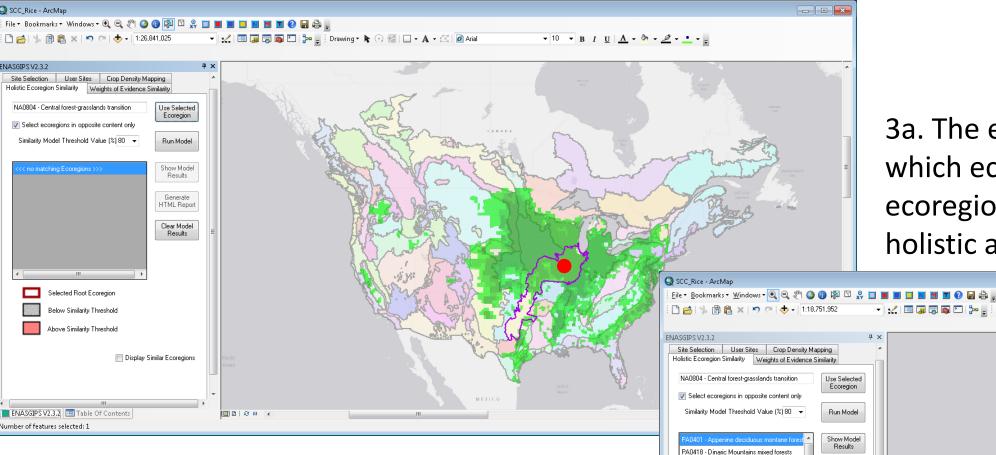
Using different assessment modes

- The ecoregion similarity model can be executed in a holistic mode or a weights-of-evidence mode. Using the WOE mode, only variables that affect the fate of the plant protection product are considered.
- Variables that users can select include temperature, precipitation, pH, organic carbon and soil texture

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• This may results in additional or even fewer matches depending on the PPP.

2. Select the ecoregion overlapping the test site and set the model assessment mode: holistic or weights-of-evidence.



3a. The ecoregion similarity model determines which ecoregion in Europe matches the US ecoregion. Below the results are shown for a holistic assessment.

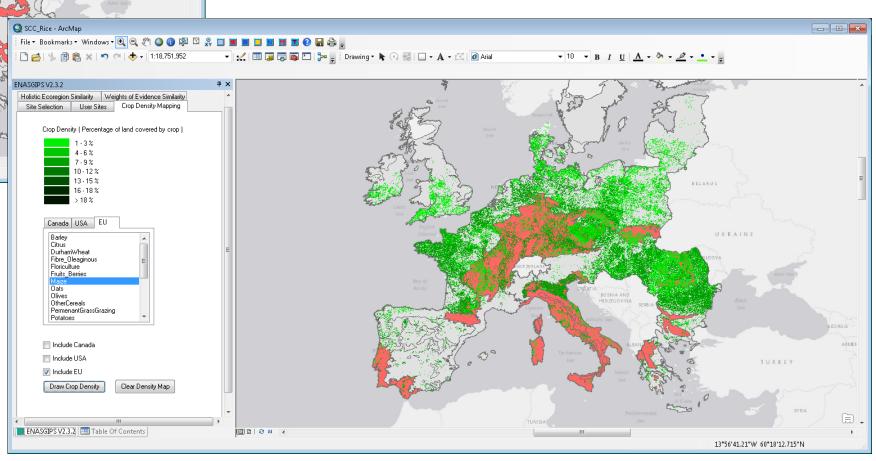
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3b. Using the weight-of evidence mode, additional ecoregions match the US test site. Precipitation was not considered.

4. The similar ecoregions cover a part of European maize producing areas.



	September	22.76	13.51	20.95	13.17	18.84	13.43	22.46		NA0801 -	PA0422 ·	PA1201 - Aegean and Western	PA1209 - Iberian	PA1211 · Italian	PA1218 · South	PA1219 -	PA1221 - Southwest Iberian	PA122
L									California Central Valley grasslands	Euxine-Colchic broadleaf forests	Turkey sclerophyllous and mixed forests	sclerophyllous and semi-deciduous forests	sclerophyllous and semi-deciduous forests	Appenine mixed montane forests	Southeastern Iberian shrubs and woodlands	Mar Discourse and	PA122 Tyrrhe Sclero and m	
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	0_	Jan	Mar	Мау	Jul	Sep	Nov		March	101.6	56.05	60.38	35.38	60.92	60.36	22.72	39.30	50.45
		Mean Annual	Feb	Apr		Aug Oct			April	39.66	41.40	42.87	53.13	68.06	52.14	23.42	51.80	46.00
	NA08	01 PA0422	PA1201	PA1209	PA1211 PA	A1218 PA1219	PA1221	PA1222	May	26.13	37.07	36.34	49.28	56.67	32.53	22.78	42.02	28.52
									June	7.615	34.67	21.61	23.83	46.61	19.90	7.627	13.59	14.48
									July	1.387	34.34	15.94	10.22	31.66	14.33	2.652	3.752	8.276
									August	1.384	28.36	13.31	12.93	36.71	16.55	4.559	5.078	11.78
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Model Results

- In addition to maps, several charts and reports are generated that provide additional insight in the results
- At times, the results are driven by just a few of the variables

Conclusions

0422 - Euxine-Colchic broadleaf fore:

0435 - Rodope montane mixed forests)445 - Western European broadleaf fi 0504 - Carpathian montane forests

Selected Root Ecoregio

Below Similarity Threshold

0432 - Po Basin mixed forest: 433 - Pyrenees conifer and mixed Generate HTML Report

- ENASGIPS is an easy to use application that can quickly provide insight if TFD test sites have matching ecoregions in North America or Europe \bullet
 - Crosswalk results (matching ecoregions) are frequently driven by a few of the variables used in the ecoregion similarity model
- Weights-of-evidence methodology provides additional flexibility to determine if a matching ecoregion exists based on the factors that affect a products e-fate.
 - The ENASGIPS application is flexible, specifically if the user is familiar with the additional ArcGIS functionality.
 - Some of the underlying soils data and crop data is incomplete and standardization will improve usability of the tool

For more information please contact Gerco Hoogeweg via email at hoogewegg@waterborne-env.com