JOB SPECIFICATION

JOB TITLE: Research Officer - Soil classification and mapping
(Ref: ROSC/JC/1109)

LOCATION: Johnstown Castle Environment Research Centre, Wexford

REPORTING TO: Head of Agri-Environment Research Dept

GRADE/SALARY: Research Officer. The current salary range is €37,302 to €66,974 with a starting salary of €37,302 to €50,790 depending on relevant qualifications and experience. Appointment will be made on a contract basis for an expected duration of up to 4 years.

BASIC FUNCTION: To provide soil pedology expertise to the Irish soil information system project

- **I)** To co-ordinate a national soil survey field campaign of 5 sampling teams for a period of 2 yrs.
- **II)** To design a correlation matrix for the conversion of Irish soil classification to the World Reference Base (WRB).
- **III)** To contribute to the development of a final soil legend and association classification system for Ireland.
- **IV)** To provide support to the project co-ordinator of this large-scale project with national and international partner institutes and stakeholders.

BACKGROUND:

Soil is a vital non-renewable resource essential to human life and the ecosystems that support this. Increasingly, soil is recognised as a habitat in its own right as well as a foundation to others. Living soil systems deliver valuable ecosystem services (biodiversity, clean air and water, food security and cultural heritage, etc). There is good agreement over the functions that soil performs in the environment and the economy and the importance that should be given to its sustainable management. With the introduction of the proposed EU Soil Framework Directive, soils will receive equal status to water quality and air quality.

In Ireland, soil data exist in variable forms and complete coverage at 1:250,000, the target scale identified at European level, does not exist. A comprehensive inventory of Irish soil data has been compiled by Daly and Fealy (2007) to assess their utility, availability and application. This review of data and survey of scientists and users of soil data confirmed that most soil data are currently held by Teagasc, and consist of mapping at 1:127,560 scale for 44% of the country, the General Soil Map of Ireland at 1:575,000 scale and other miscellaneous small area-large scale mapping of experimental farms. Daly and Fealy (2007) have highlighted that soil data coverage of Ireland is incomplete in both detail and extent. This has created difficulties for users of Irish soil information and has often led to inappropriate use of soil data. It is on this basis that Teagasc is planning to embark on an ambitious programme to develop a soil map of Ireland at 1:250,000 scale and an associated digital Soil Information System for Ireland.

The Soil Information system for Ireland will comprise of a programme of structured research into the distribution of soil types over the whole of Ireland and construct a digital soil map, at a scale of 1:250,000 as a final output along with a soil database. The project will involve novel research involving the development of a model of landforms of Ireland which will be used to predict soil associations found within currently unmapped areas. The predictions from this model will be tested by a subsequent field surveying programme. Collected data of soil profile descriptions and associated chemical and physical parameters will be used to produce a comprehensive database of soils across Ireland.

We are now seeking to recruit a contract research officer for an expected period of up to 4 years to assist in the management and development of a national scale project enhancing the current knowledge on soil classification of Irish soils. The ideal candidate will have active research experience in a range of soil related disciplines, e.g. soil pedology and classification, soil chemistry and soil physics, as well as understanding of national monitoring or mapping projects.

Teagasc - Johnstown Castle Environment Research Centre
Teagasc - Johnstown Castle is Ireland's leading research institute on the rural environment, and conducts both fundamental and applied research on a wide range of subjects, e.g. nutrient efficiency, water quality, gaseous emissions, soil quality, agro-ecology, land use and organic farming. The Environment Research programme is conducted by 9 permanent researchers, 6 contract researchers, 1 IRCSET post-doctoral researcher and 13 post-graduate research students. Of this research staff complement, 40% of staff members are female, and over 40% are international staff members, originating from 10 different countries in Europe, Africa, America, Asia and Australia.

Johnstown Castle has 190 hectares of farmland and operates 3 scientific research farms. These enterprises facilitate a range of research projects at plot, field and farm level. Teagasc is actively investing in the development of Johnstown Castle. It has earmarked EUR 1m for the purchase of environmental control rooms and analytical equipment in 2007. In addition, the centre is progressing advanced plans to build new, state-of-the-art soil research laboratories and research facilities that will include microbiological and molecular laboratory facilities.

Johnstown Castle has extensive laboratories to support the research programme with soil, slurry/sludge, water and plant analyses. In addition, it provides soil analyses for the advisory and education sections of Teagasc, with more than 45,000 soil samples analysed annually.

Our programme is funded by, among others, the Department of Agriculture, the Irish National Development Plan, EPA and EU. The main users of our research are farmers, Government Departments, the Environmental Protection Agency, policy makers, development agencies and rural communities. A significant proportion of the research is carried out in close collaboration with researchers in other institutions in Ireland, the EU, USA and other countries.

MAIN DUTIES AND RESPONSIBILITIES

1. To provide support to the project co-ordinator of this large-scale project with national and international partner institutes and stakeholders.
2. To identify current knowledge gaps in Irish soil classification and aid in the development of a predictive soil classification model.
3. To develop and coordinate a training programme in collaboration with Cranfield University and supervise with the project manager the soil survey field programme.
4. To complete rationalisation of soil associations from the final dataset and correlation with the WRB system.
5. To develop and maintain active collaborative contacts with the relevant national and international research communities.
6. To disseminate in prominent international scientific journals, as well as technical and popular press.
7. To contribute to the teamwork and team-spirit in the agri-environmental research department at Johnstown Castle, and to foster and add to further collaboration and integration.
8. To assist Teagasc in meeting the commitments of the Quality Customer Service charter and action plan.
9. To actively participate in the annual business planning and PMDS processes.
10. To complete additional duties as they may arise and be assigned by the line manager.

PERSON SPECIFICATION

	ESSENTIAL	DESIRABLE
QUALIFICATIONS	• Candidates must have an honours level 8 degree in soil science, or related relevant discipline	• A PhD in soil science, soil classification, soil mapping or relevant discipline would be a distinct advantage
KNOWLEDGE	• Knowledge of soil pedology and classification (including WRB/FAO). • General cross-disciplinary knowledge of soils, including soil chemistry, physics, pedology. • Knowledge of soil sampling, monitoring and mapping.	• Working knowledge on issues surrounding soil mapping, e.g. scale, applicability, sampling programmes. • Knowledge on policy context, e.g. the proposed Soil Framework Directive / INSPIRE directive.
SKILLS	• Research skills: soil classification, including WRB/FAO. • Data skills: use of large datasets and databases • Research skills: general soil laboratory skills • Writing skills: scientific (peer-reviewed journals) and technical	• GIS mapping skills • Writing skills: popular • Proven record of scientific communications including reporting to stakeholders and funding agencies • Aptitude for multidisciplinary approaches.
BEHAVIOUR COMPETENCIES	• Ability to work as part of a team, including consulting, collaborating and building relationships with key stakeholders and to align personal research and development objectives with departmental, centre and organisational objectives • Strives for high quality of work and demonstrates commitment to the programme. • Ability to communicate effectively to enable knowledge and technology transfer. • Ability to work independently and meet self-imposed milestones and deliverables	
OTHER	• Driving licence – Candidates must satisfy and continue to satisfy during employment with Teagasc, legal requirements to drive unaccompanied on Irish public roads. *	

* Candidates who do not satisfy requirements to drive a Teagasc vehicle may be required to utilise their own vehicle for this purpose. Appropriate travel and subsistence expense rates may apply.

HOW TO APPLY

Application forms can be accessed on our website at www.teagasc.ie/careers.

Completed application forms should be emailed to recruit@teagasc.ie

Please state relevant reference code in all correspondence.

The latest date for receipt of completed application forms is:
5.00pm on Friday, 11th December 2009

Interviews for applicants whose applications are shortlisted are likely to take place in early January 2010.

Teagasc is an equal opportunities employer. Canvassing will disqualify.