

<p>Institution:</p> <p>Writtle College</p>
<p>Unit of Assessment:</p> <p>UOA 6: Agriculture, food and veterinary science</p>
<p>a. Overview</p> <p>Writtle College is a small, specialist independent Higher Education Institution that aspires to excellence in research. The College was established in 1893 and has been producing leaders in the land-based industries for 120 years. The College's vision is to be "<i>a distinctive place to study and to serve the environment through science and the arts</i>". Since 2007 the College is working towards improving its research activity and academic profile. Higher Education provision has been structured within three academic schools: the School of Sustainable Environments (SSE), the School of Sports, Equine and Animal Sciences (SSEAS) and the Writtle School of Design (WSD). For this Unit of Assessment, the relevant Schools are: SSEAS and SSE. Embedded in these two Schools are three research Centres: The Centre for Equine and Animal Science (CEQAS) that belongs to SSEAS, whereas the Centre for Economics and Ecosystem Management (CEEM) and the Postharvest Technology Unit (PHT) belong to SSE. There is also an additional research group, Crop Science. Members of staff of the latter belong to SSE.</p> <p>In recent years, it has become increasingly important that the College seeks to focus its research activities towards offering opportunities that will allow new skills to be developed and promote a broadening of the research skills base across the College. The responsibility of driving forward the research activities mentioned above lies within the Research Committee, a sub-committee of the College's Academic Board. Research Committee oversees the implementation of the Research Strategy, the management of Postgraduate Research Students (PGRs) and promotes the benefits of integrating research into the curriculum, among other activities. Research Committee is chaired by the Research Coordinator which in turn works with heads of Schools and heads of Centres to support; monitor and maintain a database of the research produced by staff submitting to this unit of assessment. The Coordinator also deals individually with staff to support their research ambitions. Another remit of the Coordinator's job is to manage the Postgraduate Research provision on behalf of the University of Essex (Writtle's awarding institution).</p> <p>Since 1996, the College has enjoyed a mutually supportive relationship with the University of Essex, which extends to all levels of the organisation. At the moment the College is applying for Taught Degree Awarding Powers (TDAP), therefore it is envisaged that the relationship will evolve in the future. The two institutions would continue to work together if the College achieves TDAP through the continuation of joint conferences, research activity and curriculum development and</p>

also the Postgraduate Research student provision would remain with the University until such time as the College successfully applies for Research Degree Awarding Powers (RDAP). In 2009-10 the University of Essex, undertook a very satisfactory review of the College’s Postgraduate Research provision. Examples of the outcomes of the review include: “The serious and concerted efforts made to establish a dynamic research culture and improve the student experience at the College”.

b. Research strategy

During this period of assessment, the College Governors and Senior Management Team have enshrined the College’s approach to research in the Strategic Plan. It is a strategic objective of the College that research makes a major contribution to the maintenance of the academic culture underpinning the student experience and enhancing the ability of the College to engage with the industries it serves. This includes the formation of successful collaborative research relationships with other institutions and increasing commercial consultancy, research and employer-responsive training (see section e. below).

The direct relationship between Writtle’s learning, teaching and research is similarly expressed in the College Research Strategy 2008-2013. Objectives in the Research Strategy emphasise the co-engagement of staff and students in research and advanced scholarship, and the imperative to utilise staff and specialist resources in ways that deliver research goals. During this period of assessment, CEEM was developed (see impact case study). The three Centres delivered a variety of outcomes that are mainly focused upon the generation of research.

The growing emphasis on research was recognised by the QAA through the commendation of the ‘way in which the curriculum is designed, developed and delivered to take advantage of staff research and professional practice’ during the 2010-11 audit. To date the College has expanded its research provision to attain a critical mass of PGRs and has also increased the proportion of members of staff that hold research degrees. There is now an expectation that staff are engaged in research and scholarship. This practice of recruiting PhD-qualified staff has increased the College research activity during this period of assessment (Table 1) and development of this activity supports the growth of Postgraduate Research Student numbers (Table 2).

Table 1. - Average of total research outputs produced by all College staff per calendar year

	2003-2007	2008-2012
Conference papers	24	38
Peer reviewed articles	13	15
Books/book chapters	5	5

Table 2. – Overall number of Postgraduate Research students per academic year supervised at Writtle College

	2008-09	2009-10	2010-11	2011-12	2012-13
Students in period	9	14	23	25	31
Students under examination	5	1	3	4	5
Total	14	15	26	29	36

Research conducted at Writtle has significant value in real world application and contributes to the specialist fields the College's curriculum serves, for instance staff from PHT through consultancy work carried out with foreign government agencies to implement innovative packaging solutions which reduce food wastage (see impact case study). Other examples include from Crop Science the development of salt-resistant crops; and from CEQAS, the use of satellite technology to improve dairy cow welfare (see **REF3a**).

During the assessment period, the research culture at the College has been strengthened on the overall operative aims of the institution. As a result, the research on this Unit of Assessment has expanded constantly in line with the College's Research Strategy and the College's HE Strategy. This is a reflection of an increase on the number of research active staff and postgraduate research students (table 1 and 2 above) and has had a direct increase on the research income (table 3). In 2012 the BBSRC awarded the College a grant with an overall value of over £800k to develop a project to improve the welfare of dairy cows. This multidisciplinary research is developing with the collaboration of the Universities of Essex and Exeter and with the Royal Veterinary College.

Table 3. – Research Income per academic year (£ in thousands).

	2008-09	2009-10	2010-11	2011-12	2012-13
Total	4	4	13	20	91

Research Committee is also ensuring that all research supported by the College has clear objectives and outcomes, that it is relevant to the institution, to national and international stakeholders, and that it is of impact. As a result, a new Research Strategy 2014-2020 has been approved with the main aim to lead the research ambitions of the College during the following years, Research Committee will continue to evaluate its effectiveness. It is established in the new Research Strategy the objectives and milestones to consolidate the College's research profile during the next five years. Examples of these objectives include the encouragement of staff to

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attract research income, to expose staff and students to research taking place both within and beyond the College, and to mentor staff to progress through staff development, and to continue the emphasis on impact to the industries that the College serves.

c. People, including:**i. Staffing strategy and staff development**

The College is committed to improving the quality and currency of its programmes through having a significant proportion of academic staff who are actively engaged in research and/or professional practice. As a deliberate component of its Human Resources Strategy, the College has increased the recruitment of staff with PhDs who contribute to research activity. Relevant objectives of the College's Research Strategy regarding the development of staff are to contribute to the aspiration of staff to reach national and international recognition in their specialism; to continue to attract research income and identify research income generating opportunities; and to ensure that the College resources and the strengths and talents of the College staff are developed and utilised as fully as possible. As mentioned above the Research Coordinator provides institutional leadership for the direction and reporting of research.

Staff development on research is a continuous activity at the College. Workshops on how to identify research income opportunities and how to write grants have been delivered during this period of assessment. Members of staff are also encouraged to attend similar events at the University of Essex. Staff development activities related to supervision of Postgraduate Research Students have also been delivered. The College also subscribes to the Vitae Research Development Framework (<http://www.vitae.ac.uk/researchers/428241/Vitae-Researcher-Development-Framework.html>), and goals and milestones are set during the staff's annual Performance Development Review (PDR) with line managers. It is also during these PDRs where these milestones are reviewed. Regular monitoring of staff research activity takes place in the form of the College Annual Research Review Survey (CARRS) as a means to delineate the College plans for participating in Research Benchmarking Exercises (i.e. REF). This annual survey is reported to and monitored by the Research Committee. Academic staff negotiate research outputs with their Head of School as part of the PDR process and their potential contributions to the REF are monitored through CARRS meetings.

Writtle College believes that equality and diversity are central to achieving the goals set out in its Strategic Plan. The College Single Equality Scheme sets out the responsibilities of staff, students and others in relation to equality legislation. The College seeks to eliminate all forms of discrimination. The College has implemented an Equality and Diversity Steering Group which has the responsibility for monitoring the implementation of the College's Single Equality Scheme and Action Plan and making recommendations to the Senior Management Team in terms of changes to

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policy, facilities or practices and further raise awareness of the importance of equality, diversity and inclusion.

ii. Research students

Numbers of postgraduate research students supervised at Writtle (Table 2) have increased steadily since 2006 in line with the College's growing emphasis on research. The College has managed and offered supervision to PGRs since the mid 1990's. From 2008-2013, 10 PhD students in subjects related to this Unit of Assessment supervised at Writtle have successfully completed their studies.

As mentioned above, the College has increased the numbers of staff able to supervise the growing number of research students through the practice of employing PhD qualified staff and the internal formal training programme. New supervisors are paired with experienced supervisors, that is, those that have supervised successfully to completion. External supervisors are appointed where appropriate. Members of staff are encouraged to act as supervisors, always mapping a research project with the skills of a prospective supervisor. The College follows the University of Essex Code of Practice for Postgraduate Research Degrees for supervisory arrangements as agreed by the Research Committee. Each student has supervisors who are engaged in research activity and have relevant publications. Time is allocated to staff workloads to carry out the supervisory duties.

During this assessment period the College has implemented a series of training events delivered to prospective and current supervisors. The enhanced training programme was developed to ensure that the appropriate support is being given to research students. This training includes a series of specialist workshops developed by the Research Coordinator and Head of Learning and Teaching scheduled throughout the year and has been supplemented by delivery of a University of Essex Research Degree Rules and Regulations update sessions. In addition to their supervisor, research students are also supported by the Research Coordinator and the usual College student support mechanisms (e.g. Student Support, Student Union, etc.). Students have access to further support available from the University of Essex, such as Learning and Development seminars and workshops, Library, Sport facilities and the University's Students' Union. Facilities for students at Writtle include the Postgraduate Centre which is situated in a quiet location and has designated offices for the Graduate Teaching Assistants (see below), together with computing facilities, storage space and a social area. During this period of assessment, the College subscribed to EPIGEUM (<http://www.epigeum.com/>) the online research skills course.

A representative elected by the PGR students sits on Research Committee. Writtle's Graduate Teaching Assistants (GTAs) combine PhD study with 6 hours teaching per week during term time and are funded by the College, this funding includes a stipend, bench fees and the option to obtain

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a teaching qualification. During this period of assessment (since 2008-2009) the College has had 7 GTAs. For the academic year 2012-2013 there are two GTAs. Since 2010-2011 QAA Audit, the College has strengthened the support for its GTAs and growing community of PGRs. Action taken by the College is recorded in the QAA Action Plan and includes improved procedures relating to GTAs and PGR student induction and training; including the provision of formal feedback to GTAs through the College's Peer Observation of Teaching scheme.

The College responded to the 2012 QAA Quality Code Chapter B11 consultation on Research degrees and mapping of its research activity maps to this section of the Code is overseen by the Research Committee and the Centre for Academic Standards, Teaching and Learning.

d. Income, infrastructure and facilities

Income

The College is primarily driven by teaching activity and, whilst research income is modest (see table 3) and the level of engagement across the institution varies, the link between research and scholarly activity and the curriculum is increasing the level of interaction with sector bodies. Nevertheless, research income has been increasing continuously during this assessment period. Research income has been obtained from different sources including RCUK (BBSRC), industry and charities to name a few.

Infrastructure and facilities

The Centres are equipped with specialist laboratories, animal units, a research glasshouse and crops, to strengthen the specialism of their research staff. Specialist laboratories include the Postharvest Laboratory where research on agricultural produce including meat is carried out. Crop Science staff have access to crops and a research glasshouse.

CEQAS has several facilities that are used in research. A Nutrition laboratory that includes a Gas chromatographer, a High Performance Liquid Chromatographer and an Atomic Absorption Spectrophotometer. Since 2010, and to fulfil the research expertise of staff hired since 2008, a Genetics lab has been created, that includes thermocyclers and imaging equipment. The Centre also houses an additional laboratory that has a Computer Assisted Sperm Analyser (CASA) laboratory. Finally, the Centre has a microbiology laboratory capable to handle Hazard group 2 (Category 2) Containment microorganisms.

CEQAS also has a main yard and a stud where Equine research is taking place. It also has a 90 sow pig unit, a heard of around 150 sheep, a herd of around 25 beef cattle and a small animal unit that houses reptiles, fish, birds, and small mammals. These facilities and equipment are used by

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staff and research students that their projects require their utilisation. Technical staff based at the School of Equine and Animal Science have been trained to support the use of the equipment.

Postgraduate Research Students also have a space exclusive for their use, with computing facilities, storage area, and a social area. This space has restricted access to research students only.

e. Collaboration and contribution to the discipline or research base

Members of staff have contributed to the peer-review process of national (BBSRC) and international (The Dutch government) grants. They also participated along with other members of staff on the peer-review process of articles on journals; examples of these journals include Molecular Ecology, Journal of Dairy Science, Veterinary Parasitology, Veterinary Record, etc. During this period of assessment four members of staff became Fellow of the Higher Education Academy and three became Registered Animal Scientists, one is a trustee of Society of the Protection of Animals Abroad, one is a member of the Institute of Food Science and Technology and a member of the Institute of Meat.

Examples of work undertaken by CEQAS include the development of a research project on animal welfare for which the College received BBSRC major funding and is working in collaboration with the University of Essex, the University of Exeter and the Royal Veterinary College; non-academic partners include the company Omnisense and Albyns Farm. PHT is working with the University of Greenwich, Morrisons, Sharpak and foreign farmers on the development of post-harvest technology to reduce food waste. CEEM is working with Eberswalde University in Germany and organisations such as WWF to implement solutions and policies to conserve the environment. PGR students are working on collaborations with some of these institutions as part of their research projects.

Since 2011, the College has also invested in the Consortium for Research Excellence, Support and Training (CREST) part of GuildHE, which pools resources in order to encourage cross- and interdisciplinary discourses, researcher mobility and research training and skills for research-active staff and PGRs. The Consortium allows small, specialist institutions to build on existing research strengths and to enhance their collective and individual research cultures. Finally, the College also subscribes to the Quality Assurance Agency (QAA), the Higher Education Academy (HEA), GuildHE, the Academic Registrars Council (ARC) and Landex. During this period of assessment the formation of successful collaborative research relationships with industry and other universities and increasing commercial consultancy were formed and are evidenced in some of the research outputs and impact case studies submitted.