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SUMMARY - The aim of Quality Control is to give information in order to make decisions based on experiments. The rate of improvement and the complexity of new technologies induce a continuous renewal of the performance of Quality Control. In the future it may be possible for the control to be applied directly in the production plant instead of the classic laboratory. Quality Assurance re-enforces Quality Control and there are several models for implementing it (GLP's, ISO 25, EN 45000 and ISO 9000). As all of them are very similar, laboratories have to integrate them. The certification or accreditation are formal recognitions of laboratories and of their capacity to carry out a specific test. The key to future success in a business such as feed manufacturing, is the implementation of Quality Assurance systems which re-enforce Quality and Process Control Programmes.

Key words: Feed manufacturing, quality control, analytical control, quality assurance systems, certification, accreditation.

RESUME - *"L'importance du contrôle analytique". Le but du Contrôle de Qualité est d'apporter de l'information afin de prendre des décisions basées sur l'expérimentation. Le développement rapide et la complexité des nouvelles technologies entraînent un renouvellement continu des performances du Contrôle de Qualité. A l'avenir il sera peut-être possible que ce Contrôle soit exécuté directement sur le lieu de production au lieu de l'être dans un laboratoire classique. L'Assurance de Qualité renforce le Contrôle de Qualité, plusieurs modèles existant pour l'appliquer (GLP's, ISO 25, EN 45 000 et ISO 9 000). Etant donné qu'ils sont tous très semblables, les laboratoires doivent les incorporer. La certification ou l'agréage constituent une reconnaissance formelle des laboratoires et de leur capacité de mener un test spécifique. Le déterminant d'une réussite future dans un domaine tel que la fabrication d'aliments pour bétail réside dans l'application des systèmes d'Assurance de Qualité qui renforcent les programmes de Contrôle de la Qualité et des Procédures.*

Mots-clés : *Fabrication d'aliments pour bétail, contrôle de qualité, contrôle analytique, systèmes d'assurance de qualité, certification, agréage.*

One characteristic of post-industrial society is the easiness and quickness by which scientific and technological advances are applied to goods and services production. On the one hand, the speed at which innovation appears, and on the other hand, complexity of technologies justifies the managers' concern for choosing the best offer which warrantees the updating of their company.

Feed manufacturers are in a changing trend which requires constant decision making at different levels of responsibility. This activity requires reliable and appropriate information. The quality of the information that is used conditions, to a great extent, the success of the adopted decisions.

To have the appropriate information available at the right moment is, without any doubt, an element of power to compete with success. One characteristic of information is that it quickly loses value, just by simple use of it, which makes it necessary to constantly update.

The programme of this conference is not only proof of the interest for updating information, but also about the different types of information that feed manufactures are interested in. In the present lecture we make reference to the information regarding ingredients composition, characteristics of manufacturing processes and their respective analytical control.

Quality Control is a set of techniques and experimental type actions which are used to face quality demands. The aim of Quality Control is the information inferred from experimental data, and by which decisions about the usefulness or final destination of goods, or even about what changes in the production process would be made.

The accumulation of experience on Quality Control improves the specifications of goods or processes; it is then necessary to improve the control techniques. It is obvious that Quality Control is an activity which must continuously renew its performance.

Chemical, biological and physical metrologies are constantly improving their availability in such a way that, at the moment, it is generally accepted that laboratories are capable of determining any substance in any material at any concentration, for example the minimum residual level of drugs in food. On the other hand, improvements in the response rate are obtained, and with the help of computing, the process of data acquisition and final estimation are simplified, for instance with LIMS.

The cost of scientific instrumentation is not underestimated, but in general investments and functioning, expenses are cost-effective if the information obtained from them is properly used.

Not only the accuracy and sensibility of measuring instruments must be evaluated, but also their stability and robustness, which allows them to be placed near the sampling sites within the storage room or production plants. Also, preference is given to analytical techniques which require less treatment on the samples to be measured. The analytical methods that are able to include all four steps, in a single procedure - sampling, preparation, measurement and results - have the greatest interest for industrial control. An example of this is the following lecture about NIR technique.

On a short-term, an important change in the way of executing Quality Control will take place, since instrumentation will be located at the production plant or warehouse, where the samples are, instead of taking the sample to the laboratory. With this change, information will be available in shorter time and at the right place.

The dependability performance of Quality Control runs the risk that analysts will pay more attention to the use and optimisation of instrumental conditions than to the issues for which the analysis had been requested.

The attributes of quality in analysis laboratories are classified into quantifiable and non-quantifiable. Some of the first ones are based on Statistics, for example, accuracy, traceability and uncertainty, and the others are economically based, such as cost, time limits, etc.

The non-quantifiable attributes of quality in laboratories are the management of human resources, working procedures, and technical resources (instrumentation, reagents, samples, etc.).

On the one hand, laboratories analysing the same sample with the same procedures give different results. And, on the other hand, it is necessary to assure the reliability of experimental data from which decisions on manufactured materials and processes will be made. These are the reasons why organisations, such as FDA and OCDE, have made a point to advise on the implementation of the so called Principles of Good Laboratory Practices (GLP´s).

In 1987, the CEE adopted the GLP's principles from OCDE, which it is said should be applied to studies previous to the utilization of additives in feed, among other materials.

Quality Assurance System is known as a set of planned actions and systematic activities that provides adequate confidence that the product or service will comply with the specified quality demand. The Quality Assurance System is a complement for Quality Control Programme since it aims to ensure, in the future, the well functioning of the Control, and therefore the validity of information from which future decisions will be made.

To implement Quality Management Systems in laboratories it is practical to consider the laboratory as a production plant, where samples are the raw material and reports are the final products, and applying very specialized technologies and resources.

In addition to the Principles of GLP's, we have at our disposal other models, such as ISO 25 guides, by which the series of the EN 45000 norms are based on; its objective is the accreditation of competence of laboratories for standardised trial, and it is granted by a suitable and independent party capable for accreditation. This model is recommended to all laboratories dedicated to issuing certification on the fulfilment of quality specifications on products and processes.

Another more general model is the standard of the ISO 9000 series, which is adopted by industries as a quality assurance system for suppliers. This standard explicitly cites the responsibilities of laboratory on control and testing procedures, process control, control of the testing equipment, the control of procedures, and so on. The ISO 9000 norms are not so demanding on the adequacy of laboratory data, but the implementation of an adequate organisation system which permits the fulfilment of the agreed specifications between suppliers and clients.

Having a Quality Control Plan with good technicians, a well equipped laboratory, and a Manual for Quality Assurance, are not enough. It is essential to demonstrate with documents and facts that all the above mentioned are correctly used and running.

The most common procedures laboratories use to demonstrate their competence are comparative exercises and technical auditing.

Comparative exercises consist of analysing the same sample by a group of laboratories in well established conditions, according to the aim of the exercise. These exercises can be oriented to evaluate the performance of laboratories (proficiency testing), or to validate analytical methods (collaborative test) or to certify Reference Material (certification test).

If the objective of the exercise is to evaluate the laboratory competence, then the confidentiality of the results must be warranted. The results can be used by the laboratory itself to establish its own evaluation, or the coordinator can establish a ranking -by codes- of the participants in order to encourage and select the best ones.

The purpose of technical auditing is to achieve formal recognition by a competent body on the adequacy of a laboratory involved in specific tests. Depending on the applied criteria, the formal recognition may have different grades. Formal recognition by important clients and users might be a good credential for suppliers. Certification refers to the management of the quality system of laboratories, and the norms that are usually applied are the series ISO 9000 or the Principles of GLP´s. Accreditation refers to the technical requirements for the proper operation of laboratories; the norms usually applied are the EN 45000 series, or the ISO 25 guide, and the series ISO 10000, (Newmann, 1995).

The qualifications and characteristics of certification and accreditation bodies are well established by laws, for instance, the Industry Law 21/1992 of Spain. There are also international agreements among these bodies, like the EAL and EOTC.

It is obvious that the implementation of Quality Management in practice laboratories improves, to a great extent, the efficiency and reliability of the Quality Control.

Unfortunately, quality standards and regulations are not specific enough to give clear guidelines on what to do on a day to day basis. Due to this lack of clarity, most laboratories find themselves having to interpret these standards and regulations, (Huber, 1996).

Private and public auditors and inspectors, experience similar problems, and there have been situations where regulations have been interpreted differently by different inspectors.

Nevertheless, there have been some improvements. Inspection guides have been developed by regulatory bodies to be used by inspectors, thus gaining a common understanding in an industrial sector.

However, many small and medium enterprises have not reached the cultural level required to implement a Quality Assurance System in an easy and non traumatic way. Neither have the users enough sensibility to appreciate the advantages of certification and accreditation.

In conclusion, and in my opinion the key to the future success of business, as such as those involved in feed manufacture is the implementation of a Quality Assurance System which re-enforces their quality control and process control programmes.

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