



Symposium on  
Nuclear Magnetic Resonance  
Scheduled for Fall Meeting

AOCs to Convene  
At Leamington Hotel  
Minneapolis, Minn.

A Wide Line Nuclear Magnetic Resonance (NMR) Symposium will be presented on October 7, 1969, at the AOCs Fall Meeting in Minneapolis. The Chairman will be W. A. Bosin ('68) of the Pillsbury Company and the Cochairman, T. F. Conway of CPC International. There will be 13 papers presented.

The authors come from varied backgrounds, the Academic World, Research Institutes, Industry and Instrument Manufacturers. Five of the authors come from Europe where the NMR technique has been pursued extensively. L. O. Anderson and P. B. Mansfield represent two different Instrument Manufacturers, A. J. Haighton and Rune Wettstom represent Industrial interests and R. Blinc comes from the J. Stefan Nuclear Institute, Ljubljana, Yugoslavia. The remaining eight speakers are from the United States; two are from the University of Illinois, two from Southwest Research Institute and four are from Industry. Wide line NMR spectroscopy is now being used all over the world for a variety of applications of interest to the oil chemist, the plant geneticist and the analytical chemist. It is an analytical technique which has been used successfully for the quantitative measurement of hydrogenous water and oils in solid materials. The technique is particularly suitable for the rapid, nondestructive measurement of oil in a variety of sample types. It can also be used to continuously monitor process streams.

Wide line NMR absorption signals are obtained from the absorption of radio frequency (RF) energy which occurs when the sample is placed in a strong magnetic field and is exposed simultaneously to an RF field of the proper frequency. When the NMR Spectrometer is tuned to the frequency of hydrogen nuclei (protons) and from the absorption of RF energy by the mobile protons contained in the oil or water molecules, the Spectrometer can be used quantitatively to measure oil or water contents.

One particularly successful application of wide line NMR has been its use by the plant geneticist to analyze single seeds for total oil content. This selection technique has been used advantageously for breeding for higher oil content in corn. Studies made in Yugoslavia and the USA have shown that differences in oil content of kernels from the same ear were heritable. As a result, NMR selection techniques significantly reduced the time required to increase oil content. Applying wide line NMR methodology at high selection pressure, plant breeders in Yugoslavia were able to increase the oil content of corn in four or five generations by an amount that normally would have been obtained in only 20 to 30 generations.

Wide line NMR has also been applied to the determination of solids in fats and shortenings and is also suitable to study polymorphism and to monitor the oil and moisture contents of plant process samples. With the introduction of the two new instruments designed for improved reliability, reduced cost and time of sample examination to the USA, it is timely that some of these applications be described together with the newer techniques and instrumentation.

### COMMITTEE MEETINGS

DATE & COMMITTEE	TIME	ROOM
<b>SUNDAY - 10/5/69</b>		
Lipids Advisory Board & Editors	9 a.m. - 12 p.m.	Hoover A
Examination Board	10 a.m. - 12 p.m.	Hoover B
Society Improvement	2 p.m. - 6 p.m.	Hoover B
<b>MONDAY - 10/6/69</b>		
Neutral Oil Loss	1 p.m. - 2 p.m.	Hoover A
Drying Oils	1 p.m. - 2 p.m.	Hoover B
Awards Administration	1 p.m. - 4 p.m.	Washington A
I.S.F.-AOCs Joint Meeting	2 p.m. - 3 p.m.	Hoover A
Advertising	2 p.m. - 4 p.m.	Hoover B
Fats & Oils By-Products	3 p.m. - 4 p.m.	Hoover A
Epoxidized Oils	3 p.m. - 4 p.m.	Washington B
Flavor Nomenclature	4 p.m. - 5 p.m.	Hoover A
Gossypol	4 p.m. - 5 p.m.	Hoover B
Instrumental Techniques	4 p.m. - 6 p.m.	Washington A
Technical Safety	4 p.m. - 6 p.m.	Washington B
Education	4 p.m. - 6 p.m.	Wilson
International Relations	5 p.m. - 6 p.m.	Hoover A
<b>TUESDAY - 10/7/69</b>		
Dibasic Acids	9 a.m. - 10 a.m.	Hoover A
Blood Lipid Determination	9 a.m. - 12 p.m.	Hoover B
Hydrogenated Oils	10 a.m. - 11 a.m.	Hoover A
Commercial Fatty Acids	11 a.m. - 12 p.m.	Hoover A
Nomenclature	1 p.m. - 2 p.m.	Wilson
Membership	1 p.m. - 3 p.m.	Hoover A
Uniform Methods	1 p.m. - 3 p.m.	Hoover B
National Meetings Planning	2 p.m. - 4 p.m.	Wilson
Seed & Meal Analysis	3 p.m. - 5 p.m.	Hoover A
National Program & Planning	4 p.m. - 6 p.m.	Wilson
<b>WEDNESDAY - 10/8/69</b>		
Publications & Journal	8 a.m. - 10 a.m.	Land O'Lakes Lodge
Ways & Means	9 a.m. - 11 a.m.	Hoover A
Standards	9 a.m. - 11 a.m.	Hoover B
Fatty Nitrogen	10 a.m. - 11 a.m.	Washington B
Industrial Oils & Derivatives	11 a.m. - 12 p.m.	Hoover B
Feed Grade Fats	11 a.m. - 12 p.m.	Hoover A
Protein Nutrition	1 p.m. - 2 p.m.	Hoover B
Communications	1 p.m. - 3 p.m.	Hoover A
Smalley Check Sample	1 p.m. - 4 p.m.	Washington B
Bleaching Methods	3 p.m. - 4 p.m.	Hoover A
<b>THURSDAY - 10/9/69</b>		
Governing Board	8 a.m. - 6 p.m.	Land O'Lakes Lodge