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### **Measuring Russian and Soviet Agricultural production in the 19th and 20th centuries**

This paper will consider the main problems in measuring Russian and Soviet agricultural production over the last two centuries. It deals with both arable and livestock production and extends back, to the period before modern statistical accounting in the 1880s. It looks at the disturbances caused by the revolution and the increasing pressures on grain procurements. These factors distorted the way in which agricultural production was reported, and led to the introduction of a series of statistical adjustments which were initially aimed at correcting these distortions. The so called balances were developed as a check on levels of under-reporting, but they eventually destabilised the reliability by which all assessments were made. Control over harvest evaluations was shifted to an 'expert' council which effectively allowed the planners and procurement officials to vote for levels of production that were most convenient for them. After Popov's sacking in 1926 there was a deterioration in the statistical system with 'plan constructivism' in accounting data replacing statistical objectivity. TsSU was merged into Gosplan in late 1929 and statistics was replaced accounting. In early 1932 there was an attempt to reform the system and introduce more objectivity with the establishment of TsUNKhU under Osinskii. The metrovka was introduced at this time as a genuine attempt to improve the objectivity of assessing biological yields, as part of a process of assessing barn yields (after harvest and transport losses). But this coincided with the lead up to the great famine of 1932-33 which was not propitious for attempts to improve harvest records. Instead there was a move to outright concealment with the false equation of barn yield with biological yield. In 1933 Osinskii was allowed to set up a more independent Central State Committee for Harvest Evaluations (TsGK) with its own network of intra-regional subcommittees which was supposed to shield it from local administrative pressure. But the pressures to distort were not only coming from the locality but also from the Centre with orders from Stalin and Molotov in July 1933 that statistical wrecking was taking place. Ultimately TsGK was to be closed down and Osinskii was to be accused of wrecking following a report from Voznesenskii on the 1936 harvest evaluations. The barn yield distortion was only to be removed from Soviet statistics in the mid 1950s, but it was removed in a way (from 1933) that failed to recognise the distortions that had occurred in the 1926-32, The official understanding of the time of the pre-WW1 and 1920s differential was also suspect.. The paper will develop a consistent data series for grain production from the 1880s to 1991. There will be some brief discussion of other arable crops and of livestock levels The Soviets were early pioneers in artificial insemination of livestock and this was practiced on a mass basis after the massive decline in livestock levels associated with the revolution, civil war and famine of 1917-22, collectivisation and famine, 1929-33, and WW2 and famine 1941-47. The reconstituted herds were in many ways very different from the earlier weak local livestock types. These quantitative differences were not appropriately appreciated at the time, and this is probably one of the reasons for the very severe grain shortages of the mid to late 1920s that preceded collectivisation. It was not just that the herds were beginning to reach their previous numerical strength, but that these were qualitatively different and more sturdy animals which all consumed more grain than their wretched predecessors. Another important element which will be addressed is the problem of the frequent changes in administrative territorial boundaries, which currently makes it very difficult to calculate any comparable regional time series, apart from the boundaries of the major Union republics. An attempt will be

made to develop a series of more useful macro-regions to assist our overall analysis of agricultural development over this lengthy period.