Good morning everyone,
Today I'm going to talk about Fritz Haber and the Nobel Prize he received in 1918 for making ammonia from the air. This discovery changed chemistry, agriculture, and even world history. It's remembered as both a great achievement and a source of controversy. Let's see why.

The Challenge of Nitrogen At the start of the 20th century, the world had a big problem. Nitrogen makes up most of the air around us, but it's not usable by plants. Farmers had to rely on limited natural sources like animal manure or Chilean saltpetre. These supplies were running out, while the world's population was rising fast. Scientists everywhere were racing to find a way to "fix" nitrogen so it could be used as fertiliser.
(On the slide you see soil and farmland images — these remind us of the urgent food crisis at the time.)

Fritz Haber's Breakthrough Fritz Haber, born in 1868 in Germany, studied chemistry and dedicated himself to solving this nitrogen problem. In 1908, after years of experiments, he succeeded. He discovered how to combine nitrogen from the air with hydrogen gas, under high pressure and high temperature, using an iron catalyst. The result was ammonia — NH_3.
This was a breakthrough many had thought impossible. (The picture of Haber in his lab shows him during this period, working with the equipment that made history.)

Nobel Prize in Chemistry For this achievement, Haber was awarded the Nobel Prize in Chemistry in 1918. When he finally gave his Nobel Lecture in 1920, he shared five key messages:
1. How ammonia could be made from nitrogen and hydrogen. 2. The difficulties of working with high pressure and catalysts. 3. The need to link lab experiments with large-scale industry. 4. The promise of ammonia as "bread from air," essential for food. 5. Its power to solve global shortages and feed humanity.

The Haber–Bosch Process But a lab method alone wasn't enough. It needed to be scaled up. Carl Bosch, an engineer at BASF, solved the engineering challenges, and by 1913, large-scale ammonia production had begun. Together, Haber's discovery and Bosch's engineering created the Haber–Bosch process.
(The factory image on the slide shows how chemistry moved from the lab to industry, producing fertiliser at a massive scale.)

Impact on Agriculture The impact on farming was dramatic. With synthetic ammonia, soils could be replenished and food production rose sharply. It is estimated that about half the food grown in the world today relies on fertilisers made by this process. In simple words, Haber's discovery helped feed billions of people and prevented global famine.
(The images of green crops show the life-giving side of this invention.)

A Double-Edged Sword But ammonia also has another side. It can be turned into nitric acid, and then into explosives like TNT. During World War I, when Germany was cut off from natural nitrate supplies, the Haber–Bosch process became essential for making weapons. Haber himself even supervised the first use of chlorine gas in warfare.
So the same discovery that fed the world also prolonged the war. (The war image in your slides highlights this darker side.)

Environmental and Ethical Legacy Even today, we see both benefits and problems. Fertilisers have boosted food production, but their overuse pollutes rivers, causes algal blooms, and adds greenhouse gases. They also disrupt natural ecosystems. This shows the double-edged nature of Haber's work: life-saving fertilisers on one hand, but also war and environmental challenges on the other.

Conclusion: A Century of Impact So, to conclude: Fritz Haber's Nobel Prize marked a turning point in human history. His discovery revolutionised agriculture and chemistry, feeding billions. But it also reminds us that every scientific breakthrough carries risks.

Looking ahead, the challenge is to make it sustainable. - First, by creating green ammonia using renewable hydrogen, cutting down carbon emissions. - Second, by using precision farming so fertilisers are applied only where needed, reducing waste and protecting the environment.
In this way, we can keep the benefits of Haber’s discovery while protecting our planet for the future.
Thank you.