

1948 – 1966

## Agriculture during the “economic miracle”

The success of **U 46 serves as the basis** for the growth of the Agricultural Research Station. Increasing **mechanization** has been changing **agriculture** fundamentally since the 1950s. With the end of the I.G. Farben era, Limburgerhof reaches a **new level of prosperity** under the umbrella of the “**new**” **BASF**. With the **fungicide Polyram®** and the **herbicide Pyramin®**, key **milestones of crop protection** come on the market. The continuous transformation of agricultural production and the **internationalization of markets** create challenges in all business areas for the researchers in Limburgerhof.



## History

After the **currency reform** on June 20, 1948, the West Germans now have the **deutschmark** in their hands, but initially only the 40 deutschmark "allowance."

The **Nuremberg trials** end in April 1949. That same year, the **Federal Republic of Germany** and the **German Democratic Republic** are **established**.

In June 1950, the ARD (German public television broadcaster) is established. The **Tagesschau** news program is **broadcast** for the **first time** in December 1952.

In 1954, **Helmut Rahn's** goal lifts **Germany** to a 3-2 victory against Hungary, giving the country its **first World Cup championship in soccer**.

In 1960, the **Beatles**, still an unknown band, play their **first concert** in Hamburg.

On April 12, 1961, the Soviet cosmonaut **Yuri Gagarin** becomes the **first human in space**.

On August 13, 1961, construction of the **Berlin Wall** begins.

**"I have a dream."** **Martin Luther King's** most famous words are delivered in 1963 and become the embodiment of the **U.S. civil rights movement**.

U.S. President **John F. Kennedy** is **assassinated** in Dallas on November 22, 1963.

**England** wins the 1966 **World Cup championship in soccer** with a 4-2 victory against Germany.



1914–1927

1927–1948

1948–1966

1966–1996

1996–2014



AUS DER BIOLOGIE  
DER BLATTLAUSE

# KLEINE LAUS GANZ GROSS

EIN FILM

DER LANDWIRTSCHAFTLICHEN VERSUCHSSTATION LIMBURGERHOF

*Badische Anilin- & Soda-Fabrik A.G.*

LUDWIGSHAFEN A. RHEIN

## “Little aphids up close”

Films like “**Little aphids up close**” provided farmers with information about crop protection products from BASF. It was followed by “Potato concerns – Potato blessings” and “Strong stalks – heavy ears of grain.” Most of these films were directed by **Svend Noldan** (1893-1978), one of the most controversial figures in German film history. In the 1920s, he was deeply involved in the Berlin avant-garde scene surrounding George Grosz, later he made propaganda films for the National Socialists. His **industrial films** for BASF in the 1950s received honors such as the **German Film Award**.

*Schnell u. sicher*



# PERFEKTAN

*gegen die Schadinsekten in Feld, Hof und Garten*



# From active ingredient to product family – the success of U 46

**U 46 arrived on the market at just the right moment. German agriculture was in good shape after the currency reform of June 20, 1948, and the stabilization of the West German economy. The prices for agricultural products were high, and spending on fertilizer and crop protection provided immediate returns.**

I.G. Farben had a large portfolio under the BASF brand, ranging from nitrogen fertilizers to Nitrophoska to cover crop seeds such as Lihoraps and Lihoroggen. Everything in Limburgerhof was continuously reviewed and refined; expertise expanded in the area of applications, effects and interactions. The journal “Kurz und bündig” (“Brief and Concise”) began providing information to farmers in 1947; “Ratschläge für den Bauernhof” (“Advice for the Farm”) was launched in 1949 and publications for advisors were later added. A new agricultural advisory office was formed in Munich in 1948, and it served as a prelude to the founding of additional offices. Limburgerhof itself received thousands of visitors each year. But the employees of the research station were not satisfied with the success of the highly-effective herbicide U 46, and they continued to forge ahead in their research. Although weeds were

considered a major problem, pests such as the Colorado potato beetle and fungal infestations also caused a lot of trouble for farmers. While the launch of U 46 went relatively quickly thanks to a lot of research skill and a little luck, researchers from Limburgerhof found the going more difficult with regard to insecticides and fungicides. For this reason, they first relied on existing research and well-known products.

The fungicide Kumulus®, a refinement of the first sulfur products from the 1920s, came on the market in 1950. It is still used today in both organic and conventional farming to treat powdery mildew on fruit and vegetable crops. Later the same year, the insecticide Perfektan was launched.

The key product in the range remained U 46. It quickly gained a legendary reputation, but some farmers were unable to use it. Some lacked the technical equipment to use the product, while others were battling particularly stubborn weeds such as cleavers, chickweed or woody species on which U 46 had no effect.

The research station took on these problems and, in a few years, had developed a whole family of U 46 products to meet various needs. By 1964, a range of products around U 46 had been created on the basis of research at Limburgerhof. These products provided solutions for all common weed problems in grain fields and grassland.



U 46, Kumulus® and Perfektan: the “new” range of crop protection products in the 1950s



A solution for every type of weed: the full range of the U 46 product family in 1964



Field tests impressively demonstrated the effectiveness of U 46

1914 – 1927

1927 – 1948

1948 – 1966

1966 – 1996

1996 – 2014





# Benefits and side effects – research and progress in crop protection

**T**here were no doubts about the effectiveness of the U 46 products, but farmers sometimes raised concerns about unwanted side effects. These were mostly the result of improperly applying the products. For example, if farmers used a herbicide at the wrong time, it damaged not only the weeds, but the crop as well.

Intensive advisory services remained essential to ensure that crop protection products were applied correctly. Research expanded to include new active ingredients, such as organic compounds that could be better tolerated by the crops. This resulted in the 1953 market launch of Lutiram® (thiram), an organic fungicide for grapes. Unlike its copper-based predecessors, when Lutiram® was used to

treat vines, the foliage remained fresh and healthy, meaning that the grapes ripened better and produced higher yields. The research station had much to do: How could crop protection products be effective but, at the same time, also as compatible as possible? And what was the best way to combine fertilizer and crop protection? The nearly 200 employees in Limburgerhof sought answers to these and similar

questions in the mid-1950s. The ongoing research in fertilizers might have yielded less spectacular results than in crop protection, but it remained highly significant due to the sales volumes. The range of studies conducted were more in-depth. How and in what combination does nitrogen fertilizer act on potatoes, sugar beets, fruits or grassland? What impact do soil type and weather conditions have?

Limburgerhof reported the findings in the advisory centers and in its publications. The use of fertilizers increased in the 1950s, not least because the favorable price-performance ratio made them worthwhile for the German farmer.



*The extensive testing site offered groups of visitors a wide variety of things to see in the areas of fertilization, crop protection and plant breeding*



*New products, new machines: The 1950s and 1960s witnessed a profound transformation in crop protection*

1914 – 1927

1927 – 1948

1948 – 1966

1966 – 1996

1996 – 2014





*Growth under the umbrella of the "new" BASF:  
impressive crop yields in the greenhouse*



*Even today, seedlings are still  
thinned and planted by hand*

# Under the umbrella of the “new” BASF – on the road to modern agriculture

**While crop protection products and fertilizers were being further refined in Limburgerhof, the I.G. Farben era came to an end in Ludwigshafen. On February 5, 1952, the “new” BASF was entered in the commercial register, and on March 28, 1953, French soldiers removed the French flag from the Ludwigshafen site.**

All signs pointed toward further growth for the company, and the agricultural department was expected to play a significant role. In 1954, BASF generated nearly a quarter of its total sales of 1 billion deutschmarks with fertilizers and crop protection products. The products developed in Limburgerhof were an integral part of improving the efficiency of West German agriculture.

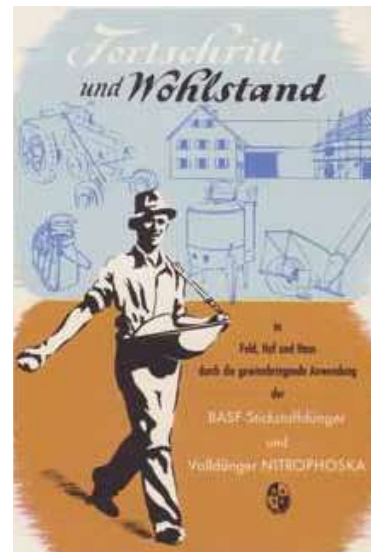
The structural change after the Second World War fundamentally altered the way farmers worked. Cultivated fields grew larger and more agricultural technology made farming more efficient, resulting in the loss of some jobs. And this trend accelerated as the “economic miracle” gathered steam in the 1950s. More and more workers moved to industrial jobs and the number of people employed

in agriculture fell from around 5 million to 3 million. Nevertheless, production rose sharply, mainly through the use of machinery, fertilizers and crop protection. Farmers were positively euphoric about the progress. Between 1948 and 1960, the number of tractors increased tenfold to 900,000, and the use of combine harvesters and milking machines became widespread. Technical innovations and agrochemicals made the difficult everyday lives of agricultural workers easier, and yields and incomes rose. In this environment, excesses were inevitable. Especially when they applied fertilizers, farmers sometimes went by the motto “more is better,” even if the additional nutrients were of almost no use.

After the great success of the herbicide U 46 since the late 1940s, Limburgerhof had been looking for a fungicide that could be more widely used. In 1956, Polyram® (metiram) came on the market, followed in 1957 by Polyram® Kombi (metiram and zineb), a contact fungicide with even better efficacy. Polyram® Kombi was a milestone in BASF's Crop Protection product range; Polyram® WG, with a modified formulation, is still on the market today and has proved its worth in a variety of crops, from fruits and vegetables to vineyards.

BASF's agricultural products led the company to a new era of prosperity. By 1958, the company's total sales had risen to 2 billion deutschmarks, with fertilizers and crop protection still contributing more than 20 percent.

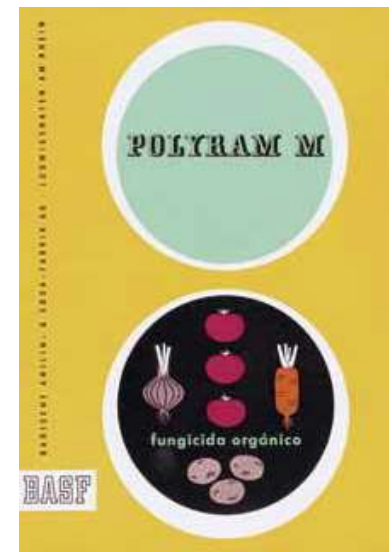
At the beginning of the 1960s, BASF was the second-largest manufacturer of crop protection products in West Germany, due



Advertising in the 1950s: Fertilizer and machinery lead to higher yields and prosperity

to its effective products and its strong advisory services. In Limburgerhof and at eight other advisory centers, farmers could receive information on product use, an offer that continued to draw thousands every year. The advisory services helped established BASF's products in agriculture, and the company maintained its leading position.

Studies in Limburgerhof showed that fertilizers and crop protection products fortuitously complemented each other. “Sufficient and balanced fertilizer use ‘creates’ high yields and timely crop protection ‘ensures’ them.” But new challenges also arose from these modern agricultural practices. For example, the application of high levels of nitrogen made cereals grow taller with higher plant density. This sometimes severely affected the stability of the cereals; the stems of some varieties could no longer support the heavier ears, and the plants then tended to bow. This process not only endangered crop yields and quality, it also made it difficult or even impossible to use the new combine harvesters on such crops. Moreover, there was the risk of late fungal infection and outgrowth. Limburgerhof was now faced with issues far beyond the control of weeds.



Potatoes, carrots, beets – Polyram® works on many crops

Crop management, including crop protection, had to adapt to modern agriculture's needs, especially how to manage higher yields.



## Services for beet cultivation in Europe

**Dr. Adolf Fischer**, Director of BASF's herbicide research and “**inventor**” of **Pyramin®**, was awarded the honor “**Officier du Mérite Agricole**” in 1964 by the French Minister of Agriculture. “The greatest joy for everyone who contributed to its development,” Fischer said in his acceptance speech, “would be for Pyramin® to continue to prove its worth in practice and for it to **help** many **farmers** around the world in their hard **work**.”

**PYRAMIN**

Zur Unkrautbekämpfung in  
Zucker- und Futterrüben  
und Roten Beeten

**BASF****PYRAMIN**

Herbicida pre- y post-emergente  
para el control de malezas en remolacha  
azucarera, remolacha forrajera  
y betarraga

**BASF**



# More than just weed control – ideas for agriculture in transition

**T**he employees of Limburgerhof were experts when it came to cereals. They had put many years of research into plant physiology and the development of U 46, which was used mainly on cereals. But what could be the solution for ears that were too heavy or for broken stems? In the United States, growth regulators were being used to maintain public green spaces. Could that work on cereals, too?

Particularly Chlormequat chloride seemed promising and was successfully tested in field trials in Limburgerhof, starting in 1962, under the working name WR 62 (an abbreviation of the year 1962 and “Wachstumsregulator,” the German word for growth regulator). In 1964, BASF filed its first patent for a growth regulator, initially as a fertilizer, under the name Cycocel®. The product was launched in 1966.

BASF sought to broaden its range of products in crop protection. The decision was made to acquire a patent in order to add an effective insecticide to its products for weed and fungal control. When the U.S.-based American Cyanamid Company withdrew the active ingredient dimethoate, BASF launched it on the market in 1962 under the trade name Perfekthion®.

However, as with the first fungicides, this product served merely to round out the range because, starting with U 46, the company’s core competence – and the greatest potential – remained in herbicides.

A particular challenge for agriculture presented itself directly at Limburgerhof’s gates. Thanks in part to government support, sugar beet cultivation was extremely profitable, but many farmers were unable to grow the crop due to a labor shortage. The entire sugar beet industry desperately wanted a “chemical hoe.” Biologists doubted, however, that it was possible to develop a herbicide that controlled weeds without harming the sugar beet plants, which were fairly close biological relatives. Since researchers in Limburgerhof were mostly in the dark with regard to “the relationship between chemical constitution and biological effectiveness,” the only possible approach was the laborious testing of many substances. The main laboratory in Ludwigshafen was on to something with pyridazones. But 100,000 hours of research were needed to create a market-ready product. By 1964, the time had finally arrived: Pyramin® (chloridazon) became the first selectively-acting herbicide on the market for sugar beets. Pyramin® was like a revolution in beet cultivation. Many farmers who

had thought about giving up on growing beets were able to continue. BASF’s new herbicide had solved a pressing agricultural problem and given a decisive boost to farmers. And, not least, Pyramin® was a great commercial success, which also benefitted Limburgerhof, BASF continued to invest and strengthen the agricultural division. In the mid-1960s, the research station struck out in new directions. Breakthrough herbicides such as Pyramin® were not just popular in Germany,

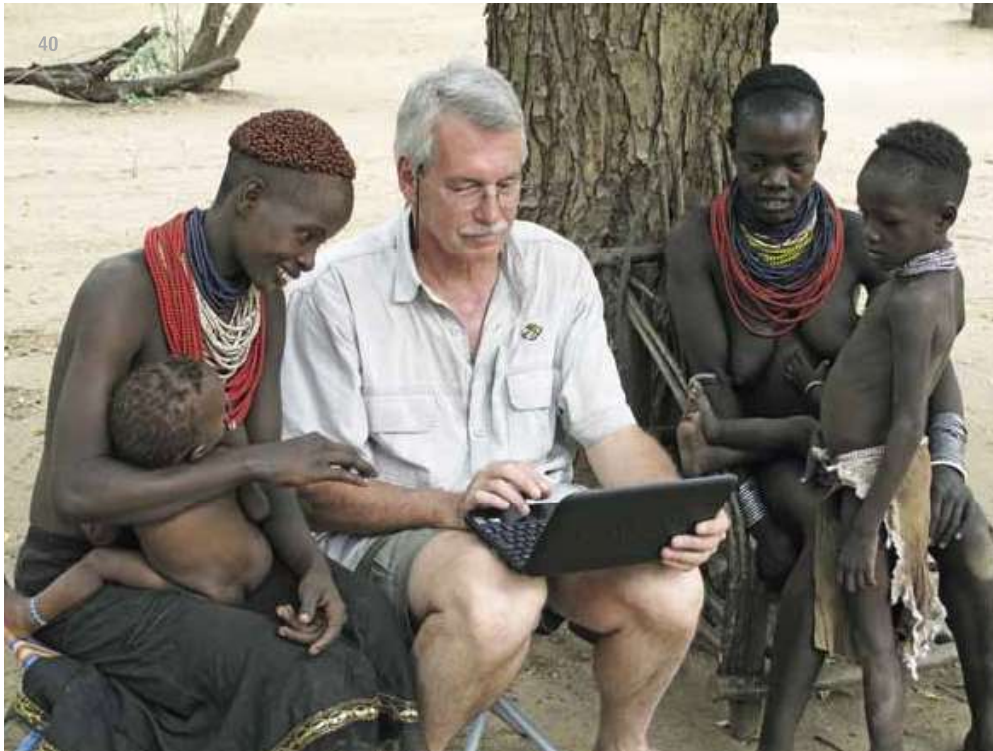
they were also selling well in many other European countries. Limburgerhof’s research had paved the way for BASF’s business in crop protection to move into international markets.

In just 20 years, the division, which was created after the war as a complement to the fertilizer portfolio, had taken a major step forward. And Limburgerhof was well on its way to developing additional solutions to the challenges faced by farmers worldwide.



Cereals treated with Cycocel® (right) showed a significantly lower tendency to lodge than the untreated control plot (left) – an important step forward for yield-focused agriculture





**In 1905, Kurt Sthamer of Hamburg decides to emigrate to German East Africa (Tanganyika, now Tanzania). He has no idea at this time that he is laying the foundation for an international family history, which decades later will be linked in a very special way with BASF.**

In 1953, his son Wolf-Volker – now back in Germany – continued the tradition and moved with his wife and children to Mozambique. There he acquired a firm that represented a number of German companies, later to include BASF. Since BASF's Crop Protection business was becoming the strongest division of Sthamer's company, BASF acquired the firm in 1970 and founded its own trading office in Mozambique with Wolf-Volker Sthamer as managing director. Following in the footsteps of their father, his three sons – Kurt, Volker and Gunther – also launched global careers at BASF.



*Managing director Wolf-Volker Sthamer with the employees of the BASF trading office in Mozambique in the 1970s*

*Development is a broad field: Volker Sthamer at an IT presentation with Ethiopian women (top left image); ox plow in Ethiopia (lower left image)*

# Pioneering work around the globe – a BASF family dynasty

The experiences of Volker Sthamer are representative of the numerous challenges that the three brothers – spread around the globe – have successfully mastered over decades. While still studying tropical agricultural science in Kassel/Witzenhausen in the mid-1970s, Volker Sthamer received a contract from BASF that brought him back to Africa. The company wanted the aspiring agricultural engineer to spend several months conducting various field trials with Pix® and Basagran® in the cultivation of cotton, corn, rice and sorghum. As a student of agricultural engineering, Volker Sthamer saw this as an opportunity to gain practical experience and to face completely new challenges. Far from the nearest city, camping in a simple tent for months in the middle of field trials, he learned Arabic in dealing with the locals. This made life there simpler but no less exciting. Today Volker Sthamer can laugh about an adventure he had in 1978, while working as a technical advisor along with two Polish pilots. Flying an Antonov plane that had been repurposed as a crop duster with a tank capacity of 6,000 liters, the pilots were supposed to spray a mixture of about 40,000 liters of Basagran® on government rice fields in Sudan. Without a seat of his own, Sthamer sat on safety belts suspended between the two pilots' seats and experienced one

of the most turbulent flights of his life. “But that’s Africa: You have to bend the rules sometimes,” he recalls with a smile.

Despite holding various positions in South America and Germany, he remained fascinated by Africa. In 1970s, Sthamer returned to the continent as managing director of the BASF subsidiary in Angola. During the civil war there, his family went through what was probably its most difficult time. Following life-threatening bombings, Sthamer was one of the last Germans to leave crisis-stricken southwest Africa. After further stops in Ethiopia and Limburgerhof, Volker Sthamer returned to Ethiopia in 2004 to reopen the BASF trading office in the East African region and revive the business that collapsed during BASF’s absence. Sthamer’s mission included managing the Striga project. Striga (also called witchweed) is a parasitic weed that attacks mainly corn fields; it can reduce yields by up to 80 percent in Africa. In close cooperation with partners from international research institutions and local seed suppliers, BASF eventually developed StrigAway®, an innovative seed treatment that farmers can use to effectively protect their corn fields and increase their yields. Volker Sthamer also fondly recalls the launch of Interceptor® mosquito nets and other effective tools in the fight against

malaria. As his global career came to a close, he was involved with the reopening of the BASF offices in Addis Ababa and Nairobi and the success of the company’s commercial presence there. “These jobs were good reasons to return to Africa and, at the same time, my chance to give something back to the continent that had such a great influence on me.”

After 33 active years at BASF, Volker Sthamer semiretired in 2011 and now reflects calmly on his eventful life: “It was a great time, and I am very happy. In many professional situations, I was often on my own, but I had many opportunities and a lot of freedom to make a difference and change things. It was a pioneering time, and I was able to play an active role.”

But Volker Sthamer also knows that this life would not have been possible without the support of his family. His wife Sabine played a major role in making the world their home. Very actively involved as an early “social networker” at international charitable and volunteer agencies, she maintained contact with people and customers around the world. However, Volker Sthamer has no plans to completely retire. Africa still fascinates him, and he is deeply involved in wildlife conservation.



*Striga remains widespread in Africa. With StrigAway®, a protective seed treatment is available*



*Volker Sthamer is still actively involved in the conservation of African wildlife*

Finally, one question remains: What type of cultural identity does someone possess, who grew up in Africa and was educated in Germany, who speaks six languages and has been at home (almost) everywhere in the world? “Each of my stations abroad has shaped me profoundly,” says Volker Sthamer, “but I’ve always remained a European – although my links to Africa are strong. My connection to Germany was always there, mainly through BASF.”

1914 – 1927

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