subjects reporting change of occupation due to respiratory problems, their occupation at that time. Occupational risks were examined separately among atopics and non-atopics using a large group of professional, administrative and clerical workers as the referent. Asthma was defined as bronchial reactivity and a report of asthma related symptoms or medication. All risk estimates are adjusted by age, sex, area and smoking status. Occupational risks estimates were generally higher among non-atopics, with the highest risks observed for farmers (odds ratio (OR) = 6.4), cleaners (OR = 3.4), spray painters (OR = 6.4), other painters (OR = 5.8), metal makers (OR = 4.4), welders (OR = 2.7) and bakers (OR = 2.6). Among atopics the highest risks were observed for plastics and rubber workers (OR = 4.1), chemical processor workers (OR = 2.1), construction workers (OR = 2.0), and other food processors (OR = 1.6). Several explanations, both biological and methodological can be given to this distinct pattern of occupational risk observed among atopics and non-atopics.

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Occupational Exposure and Asthma in New Zealand

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1613 randomly selected New Zealanders individuals aged from 20–44 years from phase one of the EC Respiratory Health Survey were invited to complete an extended respiratory questionnaire and bronchial reactivity assessment. 739 (46%) were male. 954 subjects underwent bronchial challenge assessment. Occupations were coded into 21 groups and odds ratios (95% CI) comparing prevalence of asthma symptoms in each occupational group to a referent professional class were calculated. Farmers (OR 3.85, 1.3–11.39), woodworkers (OR 2.05, 0.72–5.83) and food processors (OR 3.08, 1.6–6.96) had greater levels of wheeze or whistle in the last twelve months. Results were similar for asthma related symptoms/medication (ARS) defined as an asthma attack in the last 12 months, woken by shortness of breath in the last 12 months or current use of asthma medication. Bronchial hyperreactivity (BHR) plus wheeze or whistle in the last 12 months was associated with farming (4.56, 1.43–14.76) and laboratory technicians and assistants (3.06, 0.81–11.57). BHR plus ARS was similarly distributed. The presence of BHR alone was also associated with plastics/rubber workers and chemical processors although numbers within these groups were small.

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Skin Prick Test to House Dust Mite, Asthma and Hyperreactivity in a Cohort of Young Rurals

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The present study is a cross sectional study of 2478 young farmers of which 2004 (81%) wished to participate in this the first survey during their second stay at a farming school. As a control we studied 407 conscripts from rural areas, who were not going to be farmers.
The participants were interviewed and underwent clinical examination including lung function, histamine provocation and a prick test.
Flow volumes curves were recorded using Vitalograph pneumotachograph as a continuous respiratory manoeuvre. Bronchial hyperreactivity (BHR) was defined as the cumulative dose at which the FEV_1, fell 20% (PD20). The pricktest panel included common inhalant allergens extended with cow, pig, moulds and storage mites. The interview focused on respiratory and allergic symptoms. We found positive reactions to house dust mite (HDM) in N (%) 76 (18.7), 217 (12.8) and 25 (11.9) of the controls, the male farmers and the female farmers, respectively. We found BHR in N (%) 32 (8.3), 155 (9.4) and 19 (9.4) in the three groups. In a multiple logistic regression, controlling for sex, smoking, number of positive skin prick and FEV_1, we found an association between the size of the weal to HDM and BHR. The odds ratio for hyperreactivity increased to 1.89 (1.08–3.30) with an spt of 4–5 mm and further to 5.11 with a spt of 6+ mm. We conclude that the BHR is associated to HDM allergy among young rurals.

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Asthma Increase in Farmers: A 12-Year Follow-up

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In 1982 a study investigating the prevalence of inhalation fever and allergic alveolitis in a group of farmers living in northwestern Sweden was carried out. In 1994 a follow up study was done whereby 320 of the original 390 farmers were invited to an interview including a spirometry. Blood samples were also taken for the purpose of determining allergic disposition. Eighty-nine percent came to the interview. The mean age of the 240 men was 55 years and 54 years for the 45 women. Ten percent were smokers, 25% ex-smokers and 65% had never smoked. Observed during this period was an increase in physician-diagnosed asthma in the farmers, the population estimate being 10.5% in 1994 compared to 2% in 1982. In comparison, the prevalence of asthma in the general population in the region was about 6%. In the asthmatic subjects only 1/3 had a positive RAST-test to either common airway allergens or specifically, cow epithelium or storage mites. Additionally, levels of total Ig-E and Eosinophilic cationic protein were not significantly elevated. Farmers suffering from asthma who had left the occupation were better off in 1994 with their disease having taken a more benign course. In conclusaion, the risk for asthma in farmers appears to be doubled compared to the population in general.

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Increased Airway Reactivity and Lung Function Decline in Pig Farmers

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The aim of this study was to examine the long-term development of lung function and airway reactivity in pig farmers, in relation to their personal exposure in confinement units.
A cohort of 168 pig farmers was examined both in 1992 and 1995 with measurements of lung function and a histamine provocation test. All farmers worked at least 5 hours per day in confinement units. In 1992 measurements of personal exposure to dust and endotoxins were carried out. Exposure was measured at one day in the winter and one day in the summer period.
Mean annual decline in lung function was FEV_1 75 ml (SD 97). Mean increase in airway reactivity was 1.42 doubling doses of histamine (expressed in PC_{20}).
Decline in lung function was associated to personal endotoxin exposure. Decline in FEV_1 correlated best with endotoxin exposure in the winter (Pearson $r = -0.18$, $p < 0.05$).
Increase in airway reactivity was associated with personal dust exposure, especially exposure in the summer ($r = -0.24$, $p < 0.01$), but not to endotoxin exposure.
Our results indicate both an increased decline in lung function and a rapid increase in airway reactivity in pig farmers with prolonged occupational exposure to dust and endotoxins.

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BOS D 2 in House Dust of Farmers with Occupational Cow Hair and Dander Asthma

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In earlier studies we demonstrated the presence of cow hair major allergen Bos d 2 in the house dust of cow hair asthmatic farmers.
The aim of this study was to characterize the threshold value of house dust Bos d 2 leading to sensitization. 45 patients (mean age 57 years) suffering from cow hair and dander asthma were visited at their home and house dust samples were taken from corridors, living rooms, and bedrooms. Blood samples were taken to determine IgE and specific-IgE against cow epithelia. Bos d 2 was quantified in the dust samples by means of Rocket-Immuno-Electrophoreses.
RAST-classes 0–1 were found in 13 patients while the other 32 showed RAST-classes 2–4. The mean Bos d 2 levels in house dust were significantly lower ($p < 0.01$) in patients with RAST-classes 0–1 in comparison to higher Bos d 2 levels in dust samples from patients with RAST-classes 2–4.
A Gerhardt-Plot was computed of the data obtained from every sampling location to establish a Bos d 2 concentration which is capable to discriminate between low and high sensitization in RAST with a sufficient sensitivity and specificity. The most suitable discriminator was fixed by calculating the maximal Youden-value (sensitivity + specificity − 100).

	Discriminator Bos d 2 (μg/g)	Max. Youden-value	Sensitivity (%)	Specificity (%)
Corridor	24	68.7	77.8	90.9
Living room	20	62.4	84.6	84.6
Bedroom	29	45.1	81.5	63.6

Conclusion: About 25 μg Bos d 2/g house dust is the threshold value for a sensitization in cow hair asthmatic farmers.

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Increased Mortality in Asthma among Farmers and Hairdressers

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The aim was to investigate occupational mortality from asthma.
The study was carried out on subjects aged 20 to 64 with a current occupation. For each occupation observed number of deaths from asthma was obtained from a linkage between the Register of Causes of Death 1981–92 and occupational information in 1980 National Census. Expected number of deaths were calculated using all Swedish subjects with an occupation, and standardised mortality ratios (SMR) adjusted for smoking were calculated for each occupation. Information about smoking habits 1977–79 were obtained from a national survey. Confidence intervals (CI) were calculated assuming a Poisson distribution, and only occupations with more than five cases were analysed.
Among men increased mortality (SMR > 100) was found in 30 occupations. Statistical significance was obtained among farmers (SMR 146, 95% CI 110 to 182, 49 cases) and farm workers (SMR 262, 95% CI 102 to 423, 8 cases). Among